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Understanding co-teaching and related self-efficacy change in student teachers who co-teach

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UNDERSTANDING CO-TEACHING AND RELATED SELF-EFFICACY DEVELOPMENT IN STUDENT TEACHERS WHO CO-TEACH

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This dissertation is dedicated to my family, whose support allowed me to be a full-time mommy, full-time educator, and full-time doctoral student these past three years. Luke, thank you, and your turn is next! Atticus, I hope you grow up to become whatever you want – whether you still want to be a researcher / scientist / doctor / police officer when you're old enough to decide, or you go another route. If you believe in yourself, you can do anything you decide. And to Baby Z, who we haven't yet met, but who we already love, you too can do whatever you decide is possible. Remember always that we can't have everything we want, but we can do anything we try.

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Third, I need to thank my committee members, whose knowledge, support, and frequent feedback have allowed me to complete this work. All of you – Janet, Judy, Tara, and Yukiko - are educators who I respect and admire, and I feel lucky to have had your support and guidance during these past years. In many ways, I feel I have a bit of a dream team when it comes to my committee, and between your content expertise, research experience, and the inspiration you provided both when I was a doctoral student taking your classes and a doctoral candidate working on this dissertation, I am blessed to have had your support.

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ABSTRACT

Zartman, Krista, D. Ph.D., Purdue University, December 2015. Understanding co-teaching and related self-efficacy development in student teachers who co-teach. Major Professor: Janet Alsup.

This study's purpose was twofold. First, I sought to understand and document the experience of co-teaching as a student teacher as it is currently being conducted by universities in the State of Indiana. Secondly, I desired to understand how the documented experiences impact a pre-service student teacher's developing sense of self-efficacy related to teaching. Therefore, this work presents the results of a mixed-methods study addressing the research questions:

1. How do student teachers engaged in a co-teaching student teaching arrangement experience the classroom role of teacher with this setting?
2. How much does co-teaching as a student teacher impact a pre-service student teacher's sense of self-efficacy related to teaching? and
3. What are the experiences of co-teaching as a student teacher that inhibit, enhance, or maintain one's sense of self-efficacy related to teaching?

In answering these questions, I found that student teachers experience the role of teacher as one of transition, as they move from someone who is doing teacher-like things toward the identity of someone who is indeed a teacher. During this time, self-efficacy also develops at statistically significant levels, and this research identifies specific

experiences and characteristics that are associated with various levels of self-efficacy change, including but not limited to reflectiveness, social comparison and expectations.

CHAPTER ONE: INTRODUCTION

For three years, I served as a clinical supervisor for English student teachers at a large, Midwestern research university. When I began in 2011, all of my student teachers were in traditional placements much like what I myself experienced as a student teacher in 2004. The student teachers I supervised were placed in Indiana schools for a ten-week student teaching period, and most of that time was spent as the sole educator responsible for students' success. They planned their own lessons, independently delivered them, and assessed them as well. While they did have a mentor teacher to oversee their progress, often times he or she served as a sounding board and provider of resources, but not as a true instructional partner. Many of these mentors with whom my students and I worked seemed invested in their mentees' success, but most also seemed to believe that this traditional model – often referred to as "sink or swim" (Badiali & Titus, 2010, p. 75; Bacharach, Washut Heck & Dahlberg, 2010, p. 4; Diana Jr., 2014, p. 78) – was the right way to induct novices to the profession, possibly because it is how they themselves were inducted. During the Fall 2012 semester the expectations regarding what constitutes an appropriate student teaching experience began to change. The university where I worked as a university supervisor prepared to pilot a co-teaching program with one segment of their student teachers in the upcoming Spring 2013 semester, making "co-teaching" a bit

of a buzz word around campus, and by a chance occurrence, I found myself supervising a co-teaching partnership without prior preparation or experience.

Securing student teacher placements was difficult during the Fall 2012 semester, and one student teacher I was assigned to supervise was accepted at a large urban college preparatory campus on the condition that she and her mentor teacher co-teach throughout the semester. As her supervisor, I had the opportunity to watch their relationship develop and to learn about co-teaching through their process. As student teaching came to a close, I began to want to know more about co-teaching. Particularly, I wanted to understand what this experience is like for a student teacher. I wondered if student teachers felt like they were under a microscope and subject to increased scrutiny, for example, or if having an experienced partner enabled them to acquire pedagogical ability and content knowledge that might have been impossible had they been working independently. With this curiosity driving me, I requested permission to study this experience, beginning with the student teacher/mentor teacher partnership with whom I had worked. This study became the pilot study for my dissertation research, allowing me to identify some specific aspects of the experience that warrant further exploration.

From them, I learned that this arrangement can certainly result in a strong professional relationship and positive performance from the student teacher. They both lauded the positive impact co-teaching had on typical-ability students, and the mentor teacher, in particular, believed her professional skills had greatly benefitted from the arrangement. However, the student teacher repeatedly expressed doubts about how the experience had impacted her ability to define herself as a teacher. This struck me as odd, because by all accounts, including my own, she had performed better-than-average, and

she seemed to embody the characteristics desired in an English teacher: knowledge, patience, commitment, professionalism, and poise. Yet, despite this, she seemed to experience a lack of confidence in her ability to instruct students independently. While no construct measurement instruments were used, in hindsight it seems clear that this student teacher was suffering from a low sense of self-efficacy related to teaching.

This was an isolated case, though, and this duo's co-teaching experience was afforded no prior training or instruction on how to co-teach effectively. However, upon seeking out the scholarly research that is available on this topic, I found there to be a void in research addressing the experience of co-teaching and how it impacts student teachers' senses of self-efficacy. This single case is the impetus behind the research I now present.

Self-Efficacy Theory and Co-Teaching: An Overview

Self-efficacy theory is an offshoot of Bandura's social cognitive theory (1977), which positions human agency as the result of the reciprocal, triadic relationship between one's behavior, cognitions, and the environment. Within this theory, efficacy beliefs – forward looking judgments regarding one's capabilities in relation to a specified task – are considered the core of human agency (Bandura, 2000). These beliefs, with their predictive and explanatory capacity, are considered so important that they have evolved into a theory of their own (Bandura, 1997). Self-efficacy theory is focused on self-efficacy's predictive capabilities in regard to future performance accomplishments and task perseverance (Bandura, 1997). The early formation of these beliefs warrants attention because once self-efficacy beliefs are established, they are believed to be resistant to change (Bandura, 1997; Clark, 2010; Woolfolk Hoy & Burke Spero, 2005).

A strong sense of self-efficacy is directly linked to personal and professional success in areas that one feels efficacious (Bandura, 1977), and for teachers, this success is believed to even impact K-12 students' academic success levels (Armor et al., 1976; Ashton & Webb, 1986; Caprara, Barbaranelli, Steca & Malone, 2006; Shaughnessy, 2004; Tschannen-Moran, Woolfolk Hoy & Hoy, 1998). For example, students taught by teachers with reportedly high levels of self-efficacy score higher on standardized test instruments, report a greater interest in school, and favorably rate the academic content and their actual teacher (Tschannen-Moran et al., 1998). Additionally, self-efficacy related to teaching is related to a variety of positive teaching characteristics and outcomes including instructional goal setting, classroom interaction styles, job satisfaction, and teacher effort (Armor et al., 1976; Ashton & Webb, 1986; Bandura, 1997; Caprara et al., 2006; Klassen & Chiu, 2010; Shaughnessy, 2004; Tschannen-Moran et al., 1998; Woolfolk Hoy & Burke Spero, 2005). Recognizing the importance of teacher self-efficacy, this construct is sometimes studied in pre-service teacher populations due to the belief that once established, it is a stable construct predictive of a pre-service teacher's future professional success, and it also is believed to be related to those future teachers' K-12 students' success (Putman, 2012; Tschannen-Moran et al., 1998). Tschannen-Moran and Woolfolk Hoy asked the long term research question of "what structural features and supports make a difference in the formation of teacher efficacy beliefs?" (2001, p. 802), and Woolfolk Hoy and Burke Spero (2005) call for further research in the area of pre-service teacher self-efficacy construction because efficacy beliefs are believed to be formed early in one's career during a time like student teaching and during the

novice year in the classroom, and because they are believed to have a strong effect on teacher performance thereby positively impacting K-12 students as well.

Existing research suggests that pre-service teachers' teaching self-efficacy levels increase throughout their training (Bumen, 2013; Stripling et al, 2008; Tschannen-Moran et al., 1998; Woolfolk Hoy, April, 2000) and that student teaching provides the strongest impact on perceived self-efficacy at the close of one's studies (Knoblauch & Woolfolk Hoy, 2008; Mulholland & Wallace, 2001; O'Neill & Stephenson, 2012). After completing one year of in-service teaching, some research found that self-efficacy levels decrease, and this is attributed to an unrealistic student teaching experience that did not allow self-efficacy beliefs to be grounded in reality (Woolfolk Hoy & Burke Spero, 2005). While self-efficacy is believed to be stable once strongly constructed (Bandura, 1997), this research speaks to the need to ensure student teachers are trained under circumstances that are realistic while also contributing to their feelings of efficacy and allowing a positive base of self-efficacy to develop, since both student teaching and the novice year are considered the formative period (Bumen, 2013). This is important because a strong and realistic sense of self-efficacy is desirable in teachers, since such a sense is likely to withstand the difficulties of early career teaching and result in positive academic growth in K-12 students.

While studies have made some progress in documenting how self-efficacy develops among student teachers placed in traditional student-teaching settings, not enough is known (Klassen, Tze, Betts, & Gordon, 2011), and we know very little about the impacts of co-teaching as a student teacher, particularly in regard to the formation of self-efficacy related to teaching. This must be remedied, because in some states,

including the State of Indiana that is the context for this research study, there has been a recent departure from the traditional student teaching models that have sustained the profession for more than 50 years (Bacharach, n.d.; Bakeman, 2013; Butrymowicz, 2013; Hartigan, 2014).

Co-teaching originated in special education teaching environments as a result of federal legislation mandating inclusive classroom environments and has become increasingly widespread (Friend, 2008). While it comes in many variations, scholars agree on the following components: co-teaching involves multiple educators acting as equals within the classroom, collaboratively planning and implementing lessons, and sharing responsibility for student outcomes (Bacharach, n.d.; Bacharach et al., 2010; Badiali & Titus, 2010; Friend, 2008; Friend & Bursuck, 2006; Merk, Waggoner & Carroll, 2013; Tobin & Roth, 2005).When implemented as a means of completing the student teaching requirement of a teacher licensure program, co-teaching allows the regular K-12 classroom teacher the opportunity to mentor a pre-service teacher and serve the profession, while remaining actively involved with the teaching and learning going on within his or her classroom (Bacharach, n.d.; Bacharach et al., 2010). For pre-service student teachers, the arrangement provides a layer of professional support and collaboration that is sometimes perceived to be lacking in the traditional model (Bacharach, Washut Heck & Dahlberg, 2010; Badiali & Titus, 2010). Additionally, this model may be a superior model to past approaches to student teaching (Hartigan, 2014), overcoming many of the caveats associated with traditional models including the shortage of qualified mentor teachers who are willing to provide high-quality mentoring to pre-service teachers and the perception that the traditional model does not always

provide necessary mentoring support for student teachers (Bacharach, Washut Heck & Dahlberg, 2010). Furthermore, co-teaching overcomes the practical concern of securing student teaching placements in a political environment that has made accepting a student teacher risky for mentor teachers who are held accountable for K-12 student achievement (Diana Jr., 2014).

Despite these many benefits, this co-teaching approach brings with it possible caveats as well, including the concern that student teachers who co-teach may not be certain they have gained the necessary experience to consider themselves a teacher at the experience's end (Gallo-Fox et al., 2005; Kamens & Casala-Giannola, 2004; Merk, Waggoner & Carroll, 2013). It is this finding that causes me to wonder how self-efficacy develops among co-teachers, and it drives the purpose of this study.

Purpose

Currently, there is a void in the research documenting how co-teaching impacts a student teacher's sense of self-efficacy related to teaching. An ERIC database search using the search terms "self-efficacy" and "co-teaching" retrieved no relevant articles, a database search using "teacher self-efficacy," "co-teaching," and "student teaching" retrieved no articles at all, and neither did "self-efficacy," "co teaching," and "student teaching." Similarly, searches using the term "team teaching" as a substitute for "co teaching" and searches conducted within the Education Full Text database available through the Purdue University Libraries returned results with little relevance to this study.

Because self-efficacy related to teaching is related to desirable teacher attributes, behaviors, and outcomes (Armor et al., 1976; Ashton & Webb, 1986; Bandura, 1997; Caprara et al., 2006; Hoy & Spero, 2005; Klassen & Chiu, 2010; Shaughnessy, 2004;

Tschannen-Moran et al., 1998), it is important to understand how university program changes impact this construct. Ideally, program changes would encourage self-efficacy development in pre-service teachers that is both realistic of teaching and stronger than the traditional methods, contributing to more effective teachers. However, while some research exists to demonstrate the positive self-efficacy growth of pre-service teachers who completed a traditional student teaching experience and demonstrate that student teaching does positively impact such growth (Knoblauch & Woolfolk Hoy, 2008; Mulholland & Wallace, 2001; O'Neill & Stephenson, 2012; Stripling et al, 2008), no such research exists for student teachers who co-taught as a student teacher.

Therefore, this study's purpose is twofold. First, I seek to understand and document the experience of co-teaching as a student teacher as it is currently being conducted by universities in the State of Indiana. Secondly, I desire to understand how the documented experiences impact a pre-service student teacher's developing sense of self-efficacy related to teaching. To gain this understanding, I ask the following research questions:

Research Questions

1. How do student teachers engaged in a co-teaching student teaching arrangement experience the classroom role of teacher within this setting?
2. How much does co-teaching as a student teacher impact a pre-service student teacher's sense of self-efficacy related to teaching?
3. What are the experiences of co-teaching as a student teacher than inhibit, enhance, or maintain one's sense of self-efficacy related to teaching?

Significance

This study explores the phenomenon of co-teaching as a student teacher and detail how self-efficacy related to teaching develops in this novel student teaching environment. It also will illuminate the experience of becoming a teacher through co-teaching, which is needed because most current literature related to co-teaching focuses on the experience from the perspective of the mentor teacher or K-12 students (see Bacharach, n.d.; Bachrach et al., 2010; Bullough, et al, 2003; Mellin-McCracken and Sekicky, 1998; Murphy, Beggs, & Carlisle, 2004; Sims, 2008; Tobin & Roth, 2003), rather than from the perspective of student teachers.

Because teacher self-efficacy is positively related to numerous desirable teacher characteristics (Armor et al., 1976; Ashton & Webb, 1986; Bandura, 1997; Caprara et al., 2006; Hoy & Spero, 2005; Klassen & Chiu, 2010; Shaughnessy, 2004; Tschannen-Moran et al., 1998), it is necessary to understand the formative experiences that shape this desirable construct. By doing so, this study may also contribute to theory. Currently, self-efficacy theory positions mastery experiences as the strongest force acting upon one's developing sense of self-efficacy (Bandura, 1997), and research in the area of self-efficacy development in teacher education supports this (Tschannen-Moran & Woolfolk Hoy, 2007). Within a co-teaching arrangement, one may presume that mastery experiences are curtailed, which could create a deficit in self-efficacy sources. However, Bandura (1997) also explains that in a true novice period – a time when one has no prior experience – modeling can be an impactful force on the development of self-efficacy in the domain. Modeling should be abundant in a co-teaching situation, and while it is possible that fewer mastery experiences will be available to student teachers, the

modeling opportunities afforded by co-teaching may overcome or even surpass the traditional experience.

This study's findings also will be useful to teacher education programs implementing or considering whether to implement this model of student teaching. Additionally, this information will be useful to school administrators and professional developers by providing insights into the self-efficacy beliefs and shaping experiences of novice teachers who were trained in this way. Such knowledge should provide insights into the professional support and development needs of newly hired teachers in their school districts.

CHAPTER TWO: LITERATURE REVIEW

For ease of understanding, the following terms will be used to describe participants in the reviewed literature as well as in the case study research results: *mentor teacher* will refer to the co-teacher who is the regular classroom teacher; *student teacher* will refer to the co-teacher who is in pre-service teacher training; *university supervisor* refers to the university employee assigned to evaluate the student teacher's progress. It is worth noting that most universities who implement co-teaching now use labels like *teacher candidate* or *teacher intern* to describe the student teacher. While I agree with these labels' use, and I believe them to be beneficial to the student teacher since they emphasize the professional role that is being filled, I believe emphasizing the "student" as in "student teacher" creates better clarity for the purposes of this research report alone, serving to better differentiate the roles being described by relying on the traditional language common to higher education professionals.

The Origins of Co-Teaching as Student Teaching

Until recently, teacher education programs had remained largely unchanged for nearly 100 years (Bacharach, n.d.; Hartigan, 2014). Student teaching practices remained stable for more than 50 years (Bullough et al., 2003; Hartigan, 2014), with student teachers completing their university training before being assigned to a school classroom to practice the art and science of teaching for a period of weeks or months. In their call to

diversify approaches to student teaching, Bullough et al. (2003) describe the traditional practice as

> A teacher education student is placed in a classroom with a single cooperating teacher for varying lengths of time…as quickly as possible the student assumes complete responsibility for classroom instruction and management and, while soloing, "practices" teaching. (p. 57)

However, some researchers have found fault with this traditional model, suggesting the "sink or swim" approach (Badiali & Titus, 2010, p. 75; Bacharach, Washut Heck & Dahlberg, 2010, p. 4; Diana Jr., 2014, p.78) is similar to a hazing and is more a measure of student teachers' wills to persevere, which puts K-12 students at a disadvantage while their student teacher learns if he or she has the grit to continue and make teaching a career. There is concern for how the traditional model of student teaching affects K-12 classroom teachers who volunteer to serve as mentor teachers as well. While in the past, the opportunity to host a student teacher was understood to be a much-deserved vacation from teaching that a seasoned teacher was owed (Badiali & Titus, 2010), in the age of accountability, handing over control of one's classroom and students could theoretically have direct negative impacts on those K-12 classroom teachers who serve as mentors. For example, the State of Indiana, the context of this study, has increased its expectations in regard to teacher accountability for student academic performance. In most school districts, evaluation methods that link teacher pay raises and retention are directly married to student performance on standardized tests, per Indiana Code 20-28. The perception among school districts' teachers and administrators has been that student teachers who are not able to effectively "swim" will negatively

impact students' learning and their scores on the standardized tests that measure that learning, which in turn impacts a cooperating teacher's pay increases and overall performance evaluation. Despite the fact that 87% of Indiana teachers were rated as either highly effective or effective under the new teacher evaluation guidelines (Van Wyk, 2014), this new evaluation process and the belief that a student teacher could become a detriment has contributed to a culture of fear among teachers. Placing student teachers has become increasingly difficult and even top-tier universities struggle to find schools and classrooms willing to accommodate the student teaching experience (Bakeman, 2013; Butrymowicz, 2013). Schools are less willing to accommodate and host student teachers than they previously were because classroom teachers are concerned that allowing a pre-service teacher to take control of their classroom could be detrimental to their yearly evaluation and subsequent pay increase (Bacharach et al., 2010; Diana Jr., 2014).

An alternative form of student teaching has been explored on a limited basis, and seems poised to become the norm, as it is less risky for classroom teachers and may also be more supportive of student teachers' needs: co-teaching. Co-teaching allows a classroom teacher to remain actively involved in the day-to-day activity in their classrooms, and it is believed to be more supportive for student teachers (Hartigan, 2014), creating a scaffolded learning experience that allows the student teacher the opportunity for immediate involvement with students while receiving support and guidance from a seasoned professional. Co-teaching originated in special education teaching environments as a result of federal legislation mandating inclusive classroom environments and has become increasingly widespread (Friend, 2008). While it comes in

many variations, scholars agree on the following components: two or more educators act as equals within the classroom, collaboratively planning and implementing lessons, and sharing responsibility for student outcomes (Bacharach, n.d.; Bacharach et al., 2010; Badiali & Titus, 2010; Friend, 2008; Friend & Bursuck, 2006; Merk et al 2013; Tobin & Roth, 2005). Friend (2008) clarifies that co-teachers create "a learning situation that cannot be produced by a solo teacher" (p. 9), and in her co-written 1993 work (Friend, Reising, & Cook) she elaborates that

> educators must first ensure that the instruction that occurs in a co-taught classroom is quantitatively and qualitatively different from that offered in other classrooms. That is, an observer visiting a co-taught class should see the teachers creatively dividing students for small-group work, modeling question-asking and role-playing, and otherwise using both teachers' talents to the maximum extent. What cannot be justified is a classroom that looks just like it did with one teacher except that now there are two teachers, one of whom is "helping out" or acting as an instructional assistant. (p. 9)

Badiali and Titus use the phrase "to enhance the learning of all students" to describe their hope for co-teaching arrangements and their impact on K-12 students (2010, p. 74).

Co-teaching outside the confines of special education programs seems to have occurred simultaneous to its growth *in* special education programs and as early as the early 1990s, with some referring to it still as a practice "in its infancy" due to its historically infrequent use, lack of associated research, and overall newness to the field of teacher education (Bacharach et al., 2010, p.4). Perhaps due to special education's high profile during the No Child Left Behind Era, co-teaching has received limited attention

outside of special education and inclusive education academic circles, making its implementation as a means of student teaching somewhat difficult to ascertain. However, it seems that co-teaching as a way to train teachers formally began with Wolff-Michael Roth and Kenneth Tobin (2005), who report that during the early 1990s they were experimenting with co-teaching approaches and using this model as a method of teacher training, sometimes for pre-service student teachers and at other times for the continued professional development of in-service teachers. Within their approach to co-teaching, the researchers are careful to note that co-teaching is not simply team-teaching; instead, under their guidance there is an explicit emphasis on both helping K-12 students learn and on learning from one's co-teaching partner. Therefore, co-teaching's pedagogical implications in regard to teacher preparation and professional development are intentional.

Tobin and Roth first published in relation to this model's implications for pre-service teacher education in 2001, when they shared the results of three years' worth of co-teaching research they had conducted at the University of Pennsylvania (Tobin, Roth & Zimmerman, 2001), urging others to consider this method an appropriate way to train science teachers for urban environments. Unlike special education and other contemporary approaches to co-teaching scenarios that will be described, these researchers do not suggest specific models or guidelines for co-teaching. Instead, student teachers' active involvement from day-one of the student teaching experience is expected, and from there the day-to-day process is expected to unfold naturally between participants based on their strengths and personalities (Beers, 2005; Tobin et al., 2001). The researchers do offer up a heuristic for co-teaching that emphasizes co-planning,

respect, creating space for each other, seamlessness in collaborative style, and co-participation (Tobin et al., 2001, p. 944). Based on their adoption of Tobin and Roth-style co-teaching, Gallo-Fox and colleagues (2005) also suggest several principles for effective co-teaching in this vein: "co-respect, co-responsibility, and cogenerative dialogues" (p.6).

Contrasting with typical models of teacher preparation that call for reflection on practice, Tobin and Roth (2005) propose a different approach. Their model is based on the mottos "coteaching is learning in praxis" (p. 314) and co-teaching is "teaching at the elbow of others," (p. 316), and it is rooted in the belief that professionals who work together through all phases of teaching will naturally learn from each other "without having to stop and reflect on what they are doing at the moment and why" (p. 314). While this model's explicit lack of reflection seems remarkable, the researchers suggest traditional reflective practices be replaced with cogenerative dialogue in which participants engage in conversation about recent experiences, seeking to collaboratively generate understanding. The authors assert that this specifically addresses the disconnect found between theory and practice. Former student teachers who were students of Tobin and Roth agree this is true, with Beers (2005) discussing years of theory becoming practical and relevant due to co-teaching and engaging in dialogue with her mentor teacher.

It seems Tobin's and Roth's work reached a target, because just a few years after they first begin publishing about their research in teacher education, St. Cloud State University (SCSU) piloted a co-teaching program that draws upon their suggestion to place student teachers in co-teaching student teaching environments and that also draws

upon the models set forth by special education scholars Friend, Reising, and Cook (1993). The popularization of co-teaching models and the guidelines associated with them may account for SCSU's approach to student teaching's widespread influence. Between the longitudinal data presented by SCSU researchers, the presence of practitioner-friendly teaching models, and the availability of SCSU's co-teaching training provided through for-purchase DVDs and for-a-fee workshops, their approach is attractive to college faculty, teachers and administrators alike.

St. Cloud State University in 2004 piloted a co-teaching program that was intended to combat the difficulty of finding appropriate mentors for student teachers while also providing student teachers as much active teaching time as possible (Bacharach et al., 2010). Drawing explicitly on special education research, they adopted a series of implementation models and they advanced the academic area of co-teaching by collecting and sharing data that speak to this approach's effectiveness. In addition to providing step-by-step implementation suggestions, the SCSU model also provides a structured induction to their student teaching model, including paired workshop training for co-teaching partners that emphasizes the relational aspects of co-teaching between a student and mentor teacher:

> In contrast [to traditional models of student teaching], coteaching participants are brought together at the beginning of their shared experiences to establish a foundation of professional trust and respect, and they are supported as they continue to nurture this relationship throughout the student-teaching experience. (Bacharach et al., 2010, p. 5)

To aid the relationship building, training in communication and collaboration skills also is provided early on because SCCU believes that building a relationship of "trust and respect" (Bacharach et al., 2010, p.5) before the co-teaching experience begins creates a better environment. While not explicitly stated, it seems they hope to train their co-teachers to avoid some of the potential shortcomings of co-teaching, such as conflicts that arise over dominance in the classroom and its related responsibilities. Some of the training intended to ensure a smooth working relationship include personality profiles and work-style indicators (Bacharach, n.d.). SCSU contrasts their training with what they assume is provided to traditional student teachers, saying most universities expect student teachers to inherently possess communication and collaboration skills that will allow them to successfully navigate a professional relationship, but that their program ensures this is true by directly teaching them during the process of nurturing a trusting and respectful relationship between partners.

Also making SCSU's model unique and aiding in its popularity is that longitudinal data has been collected and disseminated. SCSU researchers provided quantitative evidence in the form of standardized test data that analyzed multiple years of a co-teaching project sponsored by the university. Their findings indicate that students in co-taught classrooms –that is, classrooms with a student teacher and mentor teacher working together – achieved higher standardized assessment scores than peers in regularly taught classrooms (Bacharach et al., 2010; St. Cloud, 2011). They also detailed a variety of benefits related to the student teachers themselves, including increased content area knowledge and classroom management skills.

While SCSU's model of co-teaching is practitioner-friendly and the benefits to K-12 students are clear and substantial, it is worth recognizing that some of the data they present should be carefully considered in regard to the student-teacher-oriented benefits. These pre-service student teachers had no basis for comparison, so data that shows 90% of student teachers in this group agree that they "taught more" (SCSU, 2011) must be balanced with the knowledge that their previous experiences likely could be described as *taught none at all*. They did not and therefore were not able to comment in a knowledgeable manner about this method of student teaching compared with the traditional approach. Likewise, data that shows 93.5% these student teachers gained "increased classroom management skills" (Bacharach, n.d.; SCSU, 2011) is also misleading. It is expected they would gain increased skills since this is meant to be their first extended teaching experience, and learning to manage student learning experiences and behaviors is an integral part of the job. This is a descriptive statistic one would expect to be high, regardless of how one completes the student teaching requirement, and it should not be viewed as a descriptor of increased quality. Since the 2011 document presents this information alongside charts that show the differences in K-12 student achievement in classrooms taught by student/mentor co-teachers, individual in-service teachers, or non-co-teaching student teachers, it is easily understood as a comparative measure, so I caution readers to carefully review the data tables before drawing conclusions.

Finally, it is also important to be aware that the program evaluation was conducted by the program developers. While the longitudinal quantitative data appears convincing, their personal involvement in the program and their dependence on the

program's success should be known. This self-evaluative stance certainly impacts the perspective of the researchers as they determine what questions to ask, what data to report, and how to disseminate it. They are not without bias.

Co-teaching as a Means of Teacher Preparation

The question of *why* co-teach has been addressed by scholars (e.g. Bacharach et al.,2010; Badiali & Titus, 2010; Beers, 2005; Bullough Jr. et al., 2003; Cherian, 2007; Diana Jr., 2014; Gallo-Fox et al., 2005; Kamens, 2007; Kamens & Casele-Giannola, 2004; Hartigan, 2014; Mellin-McCracken & Sekicky, 1998; Merk et al., 2013; Murphy, Beggs & Carlisle, 2004; Ollmann, 1992; Tobin et al., 2001; Tobin & Roth, 2005; Sims, 2008) in a variety of ways, with three key reasons emerging: (1) Co-teaching improves student academic performance - it is directly beneficial to students enrolled in co-taught classes; (2) co-teaching effectively trains pre-service teachers while providing them an increased level of support as compared to the traditional student teaching model; and (3) co-teaching encourages professional learning and enrichment for the mentor teacher. Essentially, co-teaching is often a mutually beneficial experience for all involved parties.

Benefits to Enrolled K-12 Students

Co-teaching arrangements involving student teachers benefit K-12 students, and Murphy, Beggs, and Carlisle's (2004) findings show both affective and objective indicators of a positive impact. They noted that students reported enjoying their co-taught science education lessons more than their peers, demonstrated greater learning in the content area, and retained their interest in the content after the experience was finished. Likewise, Bullough Jr. and colleagues (2003) report that the curriculum becomes richer when expertise is pooled and teachers, mentor teachers in particular, are

able to innovate and implement instructional practices that allow children to learn more, more quickly.

SCSU researchers provided quantitative evidence in the form of standardized test data that analyzed four years of a co-teaching project sponsored by the university (2004-2008). Their findings are extraordinary, indicating a consistent pattern of K-12 student achievement linked to student/mentor co-teaching that is presented alongside data for students taught by an in-service teacher and data for students taught by a traditional (not co-teaching) student teacher. In both mathematics and reading, students from co-taught classrooms outperformed their peers in classrooms with either a single classroom teacher or a single student teacher involved in a traditional student teaching experience (Bacharach et al., 2010; SCSU, 2011). Co-taught students made gains of five to 15 percentage points over their peers, and this trend remained true across demographics (SCSU, 2011). These findings held true even when data were disaggregated to focus on special education populations and low socio-economic status populations. However, when English language learners' data were disaggregated the findings were not statistically significant for that group, though they can be interpreted as possessing practical significance as a clear pattern of higher achievement was present. The researchers attribute this to feedback showing students received more one on one assistance from a teacher, were better able to learn from multiple teaching styles, and believed themselves to be more engaged due to the smaller learning groups co-teaching duos often implemented (Bacharach, n.d.; Bacharach et al., 2010; SCSU, 2011).

Badiali and Titus (2010), who operate a Professional Development School for Pennsylvania State University and the State College Area School District, discuss the

impact of additional individualized attention to students, call co-teaching the best way to ensure student needs are met, and saying "there may be no better PDS practice to accomplish these goals (putting students first) than through co-teaching" (p. 74). Likewise, Kamens (2007) found that students in classrooms taught by co-teaching student teachers--in this study pairs of two student teachers--felt they were able to gain more individualized support.

The ability to accommodate multiple learning styles through varied teaching strategies and personalities of individual co-teachers also is a strength of co-teaching. While the co-teaching arrangements described in their reports did not necessarily involve a student teacher partner, Mellin-McCracken and Sekicky (1998) and Sims (2008) found this arrangement to be particularly helpful to high school English students, with Sims writing "the English classroom in particular is a mine of opportunity for co-teachers. From writing workshops to reading groups, re-teaching sessions to literature circles, there is nothing a lone educator can do that partnered educators cannot amplify" (p. 61). This ability to better accommodate the favored practices to teaching language arts content may explain why SCSU's data shows that the benefits of co-teaching were especially strong related to reading proficiency. Like Mellin-McCracken and Sekicky (1998) and Sims (2008), Merk and colleagues (2013) also found differentiated instruction was improved by co-teaching, and they also determined that co-teaching maximizes the possibility of students forming a connection with a teacher whose personality traits or teaching styles meet their individual learning preferences. The ability to overcome cultural boundaries and teach in culturally relevant ways also is suggested as a benefit of co-teaching (Beers, 2005). Beers writes that while co-teaching as a student teacher, cogenerative dialogue

between the student and mentor co-teachers that reflected on student needs and cogenerated understanding allowed the needs of African-American students enrolled to be addressed by helping them "tackle issues surrounding how science can marginalize those who are disenfranchised" (p. 88), building in them a critical understanding of the subject area.

Support for Student Teachers

Co-teaching is believed to provide student teachers with more support than the traditional model of student teaching (Bacharach, n.d.; Diana Jr., 2014; Kamens, 2007; Bullough Jr., et al, 2003; Hartigan, 2014; Kamens & Casele-Giannola, 2004; Merk et al., 2013; Tobin & Roth, 2005;). Kamens and Casele-Giannola (2004) find that co-teachers report the perception of receiving more support than average, and they explicitly cite additional exposure to multiple teaching styles, increased feedback on their performance, and collaborative planning as beneficial to their development. Student teachers involved in the SCSU program are reported to outperform traditional student teachers in a control group on satisfactory student teaching performance indicators (Bacharach, n.d.), likely as a result of the additional support they receive in both planning and delivering instruction.

Increased support and learning opportunities are at the core of Tobin and Roth's (2005) approach to co-teaching, which focuses on preparing science teachers to work in urban environments. They believe that through their program of co-teaching and cogenerative dialogue, they can better prepare teachers for the classrooms they will someday teach individually, focusing heavily on the collaborative approach of teaching "at the elbow of the other" (p. 316) which highlights both the high level of support a student teacher (or teachers) receives as well as the benefits provided to the mentor

teacher. More recent research authored by El Kadri and Roth (2015) furthers these ideas, showing that co-teaching and engagement in cogenerative dialogue positively impacts student teachers' senses of agency, leading to a personal identity transformation from non-teacher to teacher. This sentiment, that dialogue with a mentor teacher increases agency and personal development was shared by Hartigan (2014) who found student teachers who co-teach to be more reflective than their traditionally-placed peers, likely due to the impact of mentor/mentee dialogue and the reflective modeling mentor teachers are believed to provide. Likewise, other research that focuses on two-student teacher models of co-teaching report that the two student teachers themselves serve as a source of support and guidance for each other (Bullough Jr. et al., 2003; Kamens, 2007).

Ollmann (1992) also believes that co-teaching is particularly beneficial for pre-service student teachers, saying she made the choice to co-teach with a student teacher because she believed it would rebuild the confidence of a student teacher who had a prior negative experience. Similar to the St .Cloud model (Bacharach, n.d.), she emphasized the benefits of the immediate-start typical of co-teaching arrangements and active involvement provided by a co-teaching model rather than a traditional model, saying, "When you fall off the horse, you need to get right back on" (p. 656).

In an article meant to clarify co-teaching in an inclusive education setting rather than with a student teacher, Friend (2008) suggests that the general education classroom teacher can be expected to provide expertise regarding curricular knowledge, classroom management, typical learning and behavior patterns, and instructional pacing. While these areas of expertise were described with the assumption that co-teaching partners would consist of two licensed teachers, one general education and one special education,

it is reasonable to assume that a mentor co-teacher might be expected to embody these areas of expertise as well. For the novice professional, in this case a student teacher, this type of vicarious experience is a substantial contributor to professional development and sense of efficacy. For novices, watching an expert enact a desirable behavior creates a strong impact on the novice's own sense of self-efficacy because when one is a novice, self-efficacy is still malleable (Bandura, 1997).

Focusing on the student teacher's entrance into the community of professional teachers, Badiali and Titus (2010) note that a co-teaching situation allows student teachers to learn about how to be part of the professional community and how to engage in effective collaboration. While it may be true that some teachers work independently, the advent of professional learning communities (PLCs) and shared departmental and school-wide achievement goals mean that collaboration is quickly becoming an essential element of the job, thus the ability to join a community might be understood as a necessary skill. Furthermore, Cherian (2007) claims "Isolation is an enemy to the work of teachers" (p. 38) and also suggests that student teaching be considered a time of socialization to the professional community. Beers (2005), who once student taught as a co-teacher and who now mentors student co-teachers, writes that this model allows for the development of deeper relationships that aid in the development of professional identity by allowing for reflective practice and theory-practice connections to be made clear.

Professional Learning and Enrichment for Mentor Teachers

Co-teaching has explicit professional development functions (Tobin et al., 2001) though often times the professional learning and enrichment opportunities afforded to

mentor teachers in this arrangement come as a surprise to participants. For example, science education researchers Murphy et al. (2004) note that student teachers "act as catalysts in the classroom, providing a positive influence on the teaching and learning of science" (p. 1033). They specifically state that the student teacher's influence improved the mentor teacher's effectiveness in the field of science education. Bullough Jr. et al. (2003) also provided qualitative support for this sentiment, reporting that mentor teachers say student teachers help them develop fresh ideas and approaches to teaching and learning. This idea– that co-teaching is mutually beneficial and may even act as a form of professional development – was echoed by multiple researchers (Bacharach, n.d.; Beers, 2005; Bullough Jr. et al, 2003; Diana Jr., 2014; Gallo-Fox et al., 2005; Mellin-McCracken & Sekicky, 1998; Merk et al, 2013) including Tobin and Roth (2003), who describe the process as a symmetrical activity, with both parties benefitting. Diana Jr. (2010) furthers this idea, introducing a continuum of teacher development from novice to experienced professional, and demonstrating that co-teaching is beneficial at all levels. Merk and colleagues (2013) also clarify that co-teaching can benefit schools at the district-level because it provides a no-cost professional development opportunity to schools on tight budgets. With this in mind, they frame co-teaching as a co-learning process due to the collaborative nature of knowledge construction in co-teaching duos (Merk et al., 2013).

Roth and Tobin (2005) are clear in their definition of co-teaching to describe the intentional professional benefits of the arrangement, saying this model is different from team-teaching in that the teachers are intended to learn from each other in this arrangement. Similarly, Gallo-Fox and colleagues (2005) elaborate on the co-planning

element of co-teaching, saying this time is "an excellent professional development activity because during this time, teachers share ideas, use past experiences, and collectively develop an understanding of students' learning needs" (p. 29).

Approaches to Co-Teaching

While most models of co-teaching share the principle that co-teachers must act as equals within the classroom, jointly planning and delivering instruction, there are differences in the approaches. In this section I discuss the most influential models of co-teaching and related student teaching approaches, including a description of the participants and their roles.

Models of Co-Teaching Based Upon Special Education Guidelines

Many contemporary approaches to co-teaching (see Friend & Bursuck, 2006; Bacharach, Washut Heck & Dahlberg, 2010; Dieker & Murawski, 2003), inclusive of a student teacher or not, follow guidelines promoted in the early 1990s by special education researchers Friend and colleagues (1993). Essentially, the following five structures are provided as being optimal for a successful co-teaching collaboration, and should be implemented based on co-teachers' professional judgment of appropriateness:

- The one-teach / one assist approach where co-teachers might alternate the role of "lead" teacher, with the second teacher acting as an assistant or one-on-one coach to students as needed.
- The station teaching approach where work stations are established and each teacher is responsible for delivering a specific section.
- The parallel teaching approach where the class of students is divided and identical instruction is delivered to small groups.

- The alternative teaching approach where one teacher instructs the whole class, while another teacher delivers individualized instruction to small group. These groups focus on the same content, but the instructional delivery method differs based on learner needs.
- The team teaching approach, where both teachers share equally in all aspects of large-group instruction (Friend et al., 1993).

Friend's more current presentations regarding co-teaching have included a sixth structure – "one teach, one observe." In this scenario one co-teacher observes the class period, focusing on a specific behavior that should be tracked in order to co-develop strategies to change problematic behavior or continue positive behavior (Friend, 2008).

Friend, Reising and Cook (1993) note that co-teacher partners are likely to experience a changed professional relationship because a successful co-teaching partnership requires each planning conversation to be frontloaded with an explicit conversation regarding the co-teaching strategies that should be implemented in relation to the upcoming content. The focus on choosing a model that capitalizes on both professionals' strengths means that the selection of co-teaching approaches may vary by lesson and even within a single lesson, with intentionality of implementation being essential.

While the six approaches described are meant to be selected based on purpose and are intended to be without hierarchy, several structures do seem to minimize the second co-teacher's role, and if implemented too often, could undermine a teacher's classroom authority. For example, while one teach/ one observe may yield important observational data, it also may appear to students that the observing teacher is doing

nothing. Similarly, during the one teach/one assist option, the assisting teacher may be thought of as less authoritative by students. This perception is not limited to students either, with experienced co-teachers suggesting that the perceived hierarchy can create tension and frustration between partner teachers (Carson, 2011).

Using Friend, Reising and Cook's initial five structures, Dynak, Whitten, and Dynak (1997) move away from the phrase "co teaching" and instead use "shared teaching" as the descriptor of choice, as they feel this circumvents the perceived hierarchy that is found in the Friend (1993) model. They argue in favor of a co-teaching arrangement for student teachers, saying the arrangement is both mutually beneficial and is consistent with ideals of collaboration related to the teaching profession, as teaching should not be an isolated act.

In defining participant roles, Dynak, Whitten, and Dynak (1997) view the student teacher as an intern, the mentor teacher as a professional mentor and example. The university supervisor is viewed as a facilitator to provide support within the organizational structure. Similarly, Sims (2008) utilizes the Friend et al. (1993) model as a co-teacher in a secondary English classroom. Sims' experience and report on co-teaching is not specific to a student teaching arrangement, though it has implications for pre-service teacher education in that she stresses the importance of coursework that teaches methods of co-teaching at the undergraduate level. Participant roles in Sims' approach center around the concept of instructional equality, with each participant acting as an equal.

Speaking to the challenges of secondary education co-teachers, Dieker and Murawski (2003) describe co-teaching as "a potential method of addressing the inclusive

movement" (p. 1) and also endorse Friend's approach. They also suggest that secondary level co-teaching partners are particularly suited to using instructional strategies such as peer tutoring and cooperative learning groups due to the options for small group supervision provided under the parallel teaching scenario.

Within their recommendation, Dieker and Murawski (2003) elaborate on Friend et al.'s (1993) discussion of intentional planning and relationship building and introduce the concept of a decision making partnership, referencing Norris's (1997, as cited in Dieker & Murawski, 2003) suggestion to plan on three phases of co-teacher relationship-building: storming – forming – and norming. During this process, co-teachers, who are defined as equals, will establish a routine together, learning to understand the best ways to work together effectively. During Norris' storming phase, explicit communication regarding individual strengths, personal annoyances, and work style must be shared to ensure effective collaboration. The goal of this stage is to clarify individual teaching roles and to ensure partners "value one another's strengths and that parity between educators is clearly evident" (p. 7). The next phase of co-teaching relationship secondary teachers should be aware of is storming, and in this phase conflict is expected to occur and also to be productively managed, leading to the final anticipated stage of norming, during which time partner co-teachers establish the classroom routines that will work for both partners. Introducing these relational phases to teachers early on may help to minimize the interpersonal conflicts that cause some co-teaching relationships to deteriorate. If partners know what to expect, they will be better prepared to deal with challenges as they occur.

St. Cloud Approach to Co-Teaching

SCSU is the recognized leader in co-teaching as a means of completing the student teaching requirement (Hartigan, 2014). While their model is focused on educating pre-service teachers, their suggested co-teaching strategies share much in common with those suggested by Friend (2008), including the option of one teach, one observe, and they add to it a strategy called supplemental teaching. The supplemental teaching strategy is an additional method of direct instruction that allows one teacher to deliver different material to small groups, based on learner needs, making it different than parallel teaching or alternative teaching because the actual curricular content is varied rather than simply the delivery strategies.

In the SCSU model, participants are referred to as a "triad" including the student teacher, the mentor teacher, and the university supervisor. All involved parties do engage in training prior to teaching together that is intended to prepare them for the collaborative nature of the arrangements and to apprise them of their individual roles. From the first day of the co-teaching experience, the student teacher is introduced as "teacher" to students which aids in the building of professional identity, and neither participant acts passively at any point. The role of the university supervisor is to provide support and evaluation for the student teacher and no co-teaching responsibilities are expected from him or her. Emphasized within this arrangement is active involvement on the student teacher's part from day one of the experience, and the student teacher is introduced to students and colleagues as a "teacher candidate" in an attempt to semantically emphasize that the student teacher is a teacher first and foremost.

Models Involving Three or More Co-Teachers

Especially novel forms of co-teaching were tested and evaluated by Tobin and Roth (2005) including classrooms co-taught by two student teachers without a mentor teacher, two student teachers assigned to one mentor teacher, and sometimes even up to six co-teachers in one classroom at a time, since they radically redefined the participant roles. Often, in research literature these approaches that include multiple student teachers acting as co-teaching partners are labeled as team-teaching situations, and they're deemed effective due to the increased support available inherently within a partnered teaching arrangement (Baeten & Simons, 2014). Tobin and Roth (2005) did test and continue to use the standard model of co-teaching, in which one student teacher is assigned to one mentor teacher, but their research (2005) makes clear they believe that more teachers create better learning for all involved parties.

Participants in the Tobin and Roth model are treated differently than found in other models. First, there are four participant roles recognized: student teacher(s), mentor teacher, university supervisor, and researcher. The role of researcher role is unique to their context, in that they were operating a professional development school that sought to discover teaching best practices, making a researcher's presence a normal part of the academic experience. Likewise in Roth's more recent research (see El Kadri & Roth, 2015) special school-research institution relationships exist that allow for this additional role. All parties are expected to teach and operate as collaborative equals while in the classroom, including the university supervisor and researcher. So, rather than watching and evaluating a student teacher, a university supervisor will actually teach alongside a

student teacher during the evaluation process. They argue that to evaluate co-teaching and cogenerative dialogue, all parties must be active participants (Tobin & Roth, 2005).

Like Tobin and Roth, Bullough, Jr. et al. (2003) also experimented with co-teaching arrangements involving three co-teachers consisting of two student teachers and a mentor teacher. Their research found that a co-teaching triad seems to be beneficial, though they do note that their case study research may not be widely applicable. These researchers acknowledge that they did not train participants in co-teaching structures ahead of time, and instead allowed them to trust their professional judgment to determine appropriate arrangements. Despite the lack of formal direction in the co-taught classroom, their observations showed that the co-teachers became a team, working together and often acting out one teach / one assist, station teaching, or team teaching approaches (Friend et al, 1993). They do recommend that explicit training in co-teaching be provided in the future, because they feel such training may have prevented some conflicts their participants encountered. They also suggest different moral orientations toward the teaching profession could impact co-teaching's success. For example, if one participant does not understand the profession to be "a calling" or a moral duty, partnerships may not be effective, and they explain that similar moral orientations within the partnerships they studied are one factor they believe made the pairs successful, overall.

Kamens and Casala-Giannola (2004) also evaluated the role of a three-party co-teaching experience, though in their model there was one student teacher, one general education teacher, and one special education teacher. Most participants were dual-licensure elementary/special education students. The researchers did not provide training

or guidance to participants to describe their required roles; instead they allowed participants to determine their role on their own and later collected qualitative data defining the ideal roles of all parties. However, after completing the study they now recommend that schools of education should work to clearly define roles in the future because some student teachers reported that they did not fully understand their role due to the number of professionals in the classroom at one time and are not certain they gained enough experience as a teacher. In this arrangement, the university supervisor served a dual role as an observer and as an ethnographic researcher, focusing on classroom interactions. Their findings suggest that, overall, co-teaching within a co-taught inclusion classroom is beneficial to student teachers by providing a broad range of opportunities and experiences that are not available in an arrangement featuring one student teacher and one mentor teacher due to with increased interactions with mentor teachers and exposure to multiple teaching styles.

Challenges

While co-teaching receives much praise, there are some caveats to the arrangement. For example, Gallo-Fox et al. (2005) question whether the co-teaching student teacher ever truly takes full responsibility and authority of the class, gaining the experience of what it's like to be a classroom teacher. Similarly, student teachers have expressed concern that they have not acquired enough time acting as the full-time classroom teacher, leaving them feeling uncertain of their ability to operate independently (Kamens & Casala-Giannola, 2004). Merk et al (2013) found that mentor teachers shared this concern, wondering if their student teachers had enough "solo teaching" to be prepared for their future classrooms (p.92). Though there is no definitive answer

available to address this issue, Gallo-Fox et al. (2005) suggest "perhaps the best that can be expected is that an air of co-responsibility and co-authority is assumed by all" (p. 26). Yopp et al (2014) wonder if co-teaching will adequately prepare student teachers for their own classrooms, as partnered-teaching, even if implemented on a truly equal basis, may be unrealistic of the professional setting teacher candidates find themselves in, in the future.

This concern with classroom equality and related teaching time and responsibility also is expressed in the special education co-teaching literature, with some research suggesting the "forced marriage" of co-teaching (Carson, 2011, p. 102) results in unequal power balances between the teacher who has a primary claim to the space in which co-teaching is taking place, generally the general education classroom teacher, and the co-teaching partner who travels to the space. This seems likely to present a more intense problem within the realm of student teaching due to the mentor teacher's role as the regular classroom teacher and the inherent power differential that exists between mentors and mentees. Mentor teachers in Merk et al's (2013) research stated that role uncertainty resulted in student teachers acting as "guests" (p. 91) in the classroom, and not acting as assertively during planning and instruction as the mentors desired. Beers' (2005) multiple experiences with co-teaching have been positive, though she, too, suggests the initial weeks of this arrangement are difficult due to role uncertainty and the fragility of new professional relationships, but she's quick to clarify that regular dialogue overcomes these concerns. However, Kamens and Casala-Giannola (2004) noted that student teachers involved in co-teaching felt the increased scrutiny brought on by the situation, and this led them to suggest training is needed to overcome these issues.

Gallo-Fox et al. (2005) also suggest time can be a concern, and this is echoed in literature published more recently as well (Hartigan, 2014). Co-planning, at least during its earliest phases, requires a time commitment that can be difficult to manage during a busy school day. For this reason, Gallo-Fox et al. (2005) suggest limiting co-teaching relationships to a pair of co-teachers rather than encouraging large co-teaching groups to develop as do Tobin and Roth (2005). Time may also present a challenge before the official start date of because this model typically requires participation by both mentor and student teachers prior to engaging in the experience. Finding time when all involved parties can meet may present a challenge.

Conclusions

It is primarily the concern related to co-teacher responsibility and authority that led me to my own research, because my past experience with a co-teacher resulted in mixed findings and led me to explore self-efficacy theory and related research. My goal is to understand co-teaching from the student teacher's perspective, to determine if and to what extent self-efficacy develops during the time a student teacher participates in co-teaching, and to identify and describe how this development occurs. This is important because self-efficacy is assumed to be predictive of agency (Bandura, 1997), and is linked to a wide variety of teacher success factors including teacher career longevity, job satisfaction, and perhaps most importantly, students' academic performance, and content interest (Bandura, 1997; Tschannen-Moran, Woolfolk Hoy & Hoy, 1998). Since co-teaching is an arrangement that meets many practical needs, it is likely to gain traction. Therefore, an exploration of how student teachers in co-teaching arrangements gain self-efficacy is needed.

Self-Efficacy

Self-efficacy theory is a component of Albert Bandura's larger life's work - social cognitive theory (1977, 1986, 1997). Within that theory, self-efficacy serves as the essential component between action and inaction, success and failure, with self-efficacy beliefs affecting one's thoughts, persistence, and mental states, all of which contribute to performance (Bandura, 1997). Once firmly established, self-efficacy beliefs are considered stable (Bandura, 1997, 2006; Clark, 2010), which makes them an important construct to understand and foster in student teachers. In in-service teachers, self-efficacy is also linked to K-12 students' academic success (Armor, et al, 1976; Caprara, Barbaranelli, Staca & Malone, 2006; Shaughnessy, 2004; Tschannen-Moran, Woolfolk Hoy & Hoy, 1998), making it a desirable characteristic to foster in the future professional teaching work force.

Social Cognitive Theory

Bandura's social cognitive theory is a comprehensive theory of human development and behavior, centering on human agency. Its implications are far-reaching and can be applied in many domains, including as a learning theory, a clinical treatment plan, and theory of motivation (Bandura, 1997, 1986). Social cognitive theory posits a human being as an active participant in his or her own functioning, rejecting a dichotomous view of human agency that understands a person as either shaped by external influences or by internal compulsions (Bandura, 1997). Bandura states that "people are neither driven by inner forces nor automatically shaped and controlled by external stimuli. Rather, human functioning is explained in terms of a model of triadic

reciprocality in which behavior, cognition, and environmental events all operate as interacting determinants of each other" (Bandura, 1986, p. 18).

This triadic model positions one's behavior, thinking, and environmental influences as equally important influences on human agency. Agency, Bandura notes, is the "essence of humanness" (2001, p. 1), and is defined as the ability to take action with intention (Bandura, 1997). This intentional action is supported and enabled by beliefs of personal efficacy (Bandura, 1997), which he defines as "the conviction that one can successfully execute the behavior required to produce the outcomes [necessary for success]" (1977, p. 193).

Self-Efficacy Theory

"Efficacy beliefs are the foundation of human agency" and "whatever other factors may operate as guides and motivators, they are rooted in the core belief that one has the power to produce effects by one's actions" (Bandura, 2001, p. 10). This core belief Bandura references is the construct referred to in this paper as *self-efficacy*, or one's belief in the ability to successfully enact the behaviors necessary to obtain a desired outcome (Bandura, 1977). In other articles and texts, the construct is sometimes referred to as *efficacy*, *perceived efficacy*, or *perceived self-efficacy*, but for clarity and precision will be called self-efficacy throughout this document, following A. Woolfolk Hoy's advice (Shaughnessy, 2004).

Because efficacy beliefs affect thought processes, motivation, persistence, and affective states, all of which contribute to future action, this construct has developed into a theory in its own right and is supported by research that demonstrates its predictive capabilities in relation to expected outcomes and future behavior (Bandura, 1997, p. 39).

In short, self-efficacy exerts a strong impact on future agency or the lack thereof. It exerts so strong an impact, that Bandura's research suggests that "perceived self-efficacy contributes to performance accomplishments over and above the effects of skill development" (1997, p. 102).

Though self-efficacy is often confused with concepts such as self-esteem or locus of control, it is conceptually different. Self-efficacy has been shown to be a "uniformly good predictor of diverse forms of behavior," which differentiates the construct from related ones, (Bandura, 1997, p. 20) and research suggests strong self-efficacy beliefs are resistant to change (Bandura, 1997, 2006; Clark, 2010), with Bandura noting that "people who have a tenacious belief in their capabilities will persevere in their efforts despite numerous difficulties and obstacles" (Bandura, 2006, p. 313). Likewise, in a study comparing the self-efficacy beliefs of in-service and pre-service teachers, Clark (2010) found little variation between the two group's mean efficacy scores related to core aspects of teaching, lending empirical support to the assertion that once self-efficacy beliefs are established, they are difficult to move.

Because measurement issues arise when self-efficacy is confused with similar constructs, it is important to understand that self-efficacy is one's "future-oriented belief about the level of competence a person expects he or she will display in a given situation" based upon their current level of development (Woolfolk Hoy, Demerath, & Pape, 2001, p. 122). Unlike self-esteem which is a judgment of self-worth, self-efficacy is not related to how much or how little one likes him or herself (Bandura, 1997, 2006). Bandura also emphasizes that perceived self-efficacy is vastly different from locus of control, because while self-efficacy reflects perceptions of whether or not one can perform certain actions,

locus of control represents beliefs about whether actions affect outcomes, emphasizing a causal belief rather than an efficacy judgment (Bandura, 1997). Bandura (1997) writes that "with regard to their relationship to behavior, perceived self-efficacy is a uniformly good predictor, whereas locus of control is generally a weak or inconsistent predictor of the same behaviors" (p.20).

Self-Efficacy in Teacher Education Research

Self-efficacy's predictive potential has allowed this theory to garner interest in many areas, and the field of education has taken particular interest in this theoretical construct. Teacher self-efficacy was first studied in 1976 during a reading program evaluation (Armor et al., 1976) and has become of increasing interest throughout the 1990s and early 21st century, with Bandura himself stepping into the discussion in 1997.

In teacher education research, self-efficacy is described as the belief that one can influence student learning (Woolfolk Hoy & Burke Spero, 2005). It is believed to function in two dimensions: general teaching self-efficacy and personal teaching self-efficacy (Ashton & Webb, 1986; Woolfolk Hoy & Burke Spero, 2005). General teaching self-efficacy refers to teachers' expectations about the profession, specifically whether teachers have the ability to influence student learning, while personal teaching self-efficacy refers to a personal assessment of one's own teaching competence, regardless of general feelings about the profession (Ashton & Webb, 1986). In this study, personal teaching efficacy is the focus. Self-efficacy is of particular interest because teachers' self-efficacy is one variable shown to predict students' academic success (Armor et al., 1976; Ashton & Webb, 1986; Bandura, 1997; Caprara et al., 2006; Shaughnessy, 2004; Tschannen-Moran et al., 1998).

Self-Efficacy in In-Service Teachers

Since Bandura's initial pronouncement of self-efficacy's importance, research confirms self-efficacy is positively correlated to many desirable outcomes including student success levels (Ashton & Webb, 1986; Armor et al., 1976; Bandura, 1997; Caprara et al., 2006; Shaughnessy, 2004; Tschannen-Moran et al., 1998), and it also is related to positive teacher characteristics such as job satisfaction (Caprara et al., 2006; Klassen & Chiu, 2010; Slaalvik & Slaalvik, 2014), which is assumed to be causally related to career longevity (Milner & Woolfolk Hoy, 2003), teacher professional engagement (Slaalvik & Slaalvik, 2014), and positive classroom management and instructional strategies (Ashton & Webb, 1986). Perhaps most importantly, students taught by teachers with reportedly high levels of self-efficacy score better on standardized test instruments, report a greater interest in school, and favorably rate the academic content as well as their actual teacher on course evaluations (Tschannen-Moran et al., 1998). Alternatively, teachers with low senses of self-efficacy tend to turn out lower achieving students while engaging in deflective behavior that avoids personal responsibility for student learning (Ashton & Webb, 1986). These teachers view the classroom as a power grab situation, with all low self-efficacy teachers defining the classroom as a place of conflict, and they "do not spend much time teaching low achievers, because in their view, such an effort would produce many frustrations and few results" (Ashton & Webb, 1986, p. 81), which likely accounts for the disparity between low and high self-efficacy teacher groups.

While critics may assume that teachers who instruct "good students" or who work in "good schools" would likely have greater self-efficacy simply because of the context in

which they teach, some research suggests this is not the case. Caprara et al. (2006) found that while teacher self-efficacy is positively related to students' academic achievement, they also found that students' past academic achievement is not related to teachers' sense of self-efficacy, indicating that it is the belief in one's teaching capabilities that affects efficacy, not assumptions about students' innate capabilities or other contextual factors that are among the typical factors that impact one's teaching career. Likewise, Tshannen-Moran and Woolfolk Hoy (2007) found that contextual features such as resource availability were not at all related to experienced teachers' senses of efficacy, and only minimally related to novice teachers' senses of self-efficacy. Lending additional support to this idea is recent research that shows student teachers placed in all types of settings – rural, suburban, or inner city – are found to experience self-efficacy growth as a result of the experience, regardless of context (Knoblauch & Woolfolk Hoy, 2008). Other contextual features such as a teacher's gender also are found to be unrelated to self-efficacy beliefs (Pendegrast, Garvis, & Keogh, 2011). Simply put, the research suggests that teachers with high senses of self-efficacy are more effective teachers, independent of outside influences, and in this era of accountability this is more important than ever before.

Some researchers have sought to understand the pattern of self-efficacy development in in-service teachers. It seems that at the end of the first year of in-service teaching, teachers may exhibit lower levels of self-efficacy than they did one year earlier at the end of their student teaching experience (Clark, 2010; Woolfolk Hoy & Burke Spero, 2005; OECD, 2010); however, Clark (2010) and the authors of the TALIS 2008 Technical Report (OECD, 2010) both clarify that this change, while statistically

significant, is not practically significant due to the minimal effect size associated with the decline. Other studies identify no change to self-efficacy levels at all during this time (Sahin & Atay, 2010). Slight decreases in self-efficacy related to teaching may be attributed to a lack of mentoring support and an increase in enactive experiences during which failure may occur. Coupled with research that shows self-efficacy to increase throughout one's college training (Bumen, 2013; Knoblauch & Woolfolk Hoy, 2008 & Mulholland & Wallace, 2001; O'Neill & Stephenson, 2012; Tschannen-Moran et al., 1998; Woolfolk Hoy, April, 2000), culminating in high levels at the end of one's student teaching period, this data supports the malleability of self-efficacy during a formative period (Bandura, 1997) and may support the relative stability of self-efficacy beliefs once constructed.

Extended research presents an unclear picture of teacher self-efficacy development over one's career. In the long term, it seems that career teachers generally exhibit higher levels of self-efficacy than novices (Klassen & Chiu, 2010; Putman, 2012; Tschannen-Moran & Woolfolk Hoy, 2007), possibly due to an increased amount of enactive mastery experience that included success, though also likely due to high attrition rates among less self-efficacious teachers. However, some research finds a negative correlation between teacher self-efficacy and years of experience (Guo, Piasta, Justice & Kadarevak, 2009), with Klassen & Chiu (2010) finding that after more than 23 years as an in-service teacher, self-efficacy may decrease (Klassen & Chiu, 2010). They attribute this drop to a career development phase of disengagement characterized by a lack of motivation. It also is likely that recent technological advances combined with increasingly explicit academic standards and related assessment may impact older

teachers more dramatically than those who were more recently enrolled in a teacher education program or who have children enrolled in school.

Acting as potential mediating factors to in-service teacher self-efficacy slip are an increased amount of literacy course work during one's teacher education training (Clark, 2010), an appreciation for professional development (Clark, 2010), and memories of success in similar contexts (Milner & Woolfolk Hoy, 2003). In her doctoral dissertation research, Clark (2010) found that teachers who had more than three literacy courses had higher levels of self-efficacy during their student teaching experience and were more likely to maintain their initial levels of self-efficacy than other Utah teachers during the two year study period. Additionally, in-service teachers' self-efficacy was positively impacted by their reported belief in the benefits of ongoing professional development and mentoring. Those who found these items to be beneficial were likely to report high levels of self-efficacy. Milner and Woolfolk Hoy (2003) found that an educator with more than 25 years in-service experience was able to maintain a strong sense of self-efficacy despite working in an unsupportive environment by drawing on memories of past success.

Self-Efficacy in Pre-Service Teachers

Recognizing the importance of teacher self-efficacy, this construct is becoming increasingly studied in pre-service teacher populations due to the belief that once established, it is a stable construct predictive of future success and student success as well (Putman, 2012; Tschannen-Moran et al., 1998). Research suggests that pre-service teachers' general teaching self-efficacy levels rise throughout their training (Bumen, 2013; Stripling et al, 2008; Tschannen-Moran et al., 1998; Woolfolk Hoy, April, 2000) and that student teaching provides the strongest impact on perceived self-efficacy, with

survey data showing the highest scores for pre-service teachers to be the ones collected just after student teaching (Knoblauch & Woolfolk Hoy, 2008 & Mulholland & Wallace, 2001; O'Neill & Stephenson, 2012). Student teachers who believe they have received high levels of mentoring support exhibit the highest self-efficacy gains, making this consideration an important one for teacher education programs (Woolfolk Hoy & Burke Spero, 2005; Knoblauch & Woolfolk Hoy, 2008). Like in-service teachers, pre-service teachers' senses of self-efficacy are not related to gender (O'Neil & Stephenson, 2012).

Patterns of pre-service teacher self-efficacy development are of interest, and while most American research shows an increase in self-efficacy between coursework and student teaching (Woolfolk Hoy, April 2000), some conflicting research does exist. In a study of Australian pre-service teachers, Pendergast et al, (2011) found that pre-service teacher self-efficacy declined between program induction to after completing student teaching; however, self-efficacy rose during the actual student teaching experience. They attribute this overall decline to initially inflated self-efficacy beliefs as a result of inexperience. Inflated senses of self-efficacy are not uncommon among pre-service teachers without classroom experience (Putman, 2012; Pendegrast et al, 2011), though because this "novice" period is when self-efficacy beliefs are most malleable (Bandura, 1997), it is important to ensure that strongly-fixed beliefs are ultimately constructed within the program's confines and that reasonable expectations are set by pre-service teachers as they engage in course work, pre-service experiences, and finally student teaching.

Self-Efficacy Construction

Self-efficacy is believed to be constructed through four main sources of information: mastery experiences, vicarious experiences, verbal persuasion, and emotional arousal (Bandura, 1986, 1997). These four factors are weighted differently by individuals as a result of sociocultural experiences, and while it is possible to shape initial perceptions of self-efficacy, strong senses of efficacy are resistant to change, and "are changeable only through compelling disconfirming experiences" (Bandura, 1997, p. 68). Therefore, initial care related to self-efficacy development is imperative.

Establishing a high initial level of self-efficacy during one's pre-service student teaching experience may be particularly important because in addition to the mature construct's overall stability, research suggests that the typical pattern of initial self-efficacy development related to teaching is to increase through one's pre-service teacher education training (Bumen, 2013; Tschannen-Moran et al., 1998; Woolfolk Hoy, April 2000), continue to increase throughout one's student teaching experience (Bumen, 2013; Clark, 2010; Knoblauch & Woolfolk Hoy, 2008; Mulholland & Wallace, 2001; O'Neill & Stephenson, 2012; Woolfolk Hoy, April 2000), and then to slightly decrease during one's initial year in the classroom when mentoring support is lacking and mastery experiences are most plentiful (Clark, 2010; Sahin & Atay, 2010; Woolfolk Hoy, April 2000; Woolfolk Hoy & Burke Spero, 2005).

The pattern of pre-service to first year teacher self-efficacy drop-off is troubling for several reasons. High self-efficacy contributes to student learning, so it is desirable to employ teachers with high senses of self-efficacy. Secondly, low teacher self-efficacy is assumed to be a major contributor to the multi-billion dollar problem of teacher attrition

(Jamil, Downer & Pianta, 2012; Milner & Woolfolk Hoy, 2003). Teacher attrition rates of 40-50 percent for early career teachers (1-5 years' experience) (Ingersoll, 2012, May 16) and 16-20 percent overall are expected to cost the U.S. economy more than $7 billion annually (National Commission on Teaching and America's Future, n.d.). Low teacher self-efficacy is assumed to be a major contributor to this turnover, further demonstrating the need to shape pre-service teachers to begin their careers with strong senses of self-efficacy that can withstand adverse circumstances. Jamil, Downer and Pianta (2012) say self-efficacy should be a "target for growth during teacher preparation" (p. 119) as the United States attempts to resolve the issue of teacher turnover. Therefore, understanding the sources of self-efficacy and the circumstances in which self-efficacy can bloom in a variety of contexts is essential.

Mastery Experiences

In self-efficacy theory, mastery experiences are considered the most influential source of efficacy information (Bandura, 1986, 1997), with performance successes resulting in increased senses of efficacy. Similarly, repeated performance failures can result in a decreased sense of efficacy; however, individuals who understand their successes and failures from a temporal perspective and who can identify progress over time tend to benefit despite the initial unsuccessful experiences (Bandura, 1997). Likewise, individuals who have strong established senses of self-efficacy can withstand the occasional failed mastery experience, and may even be motivated by occasional failure, understanding it as an opportunity to grow and develop new skills.

Mastery experiences in teacher research. Within teacher and pre-service teacher research, the importance of mastery experiences is supported, and as Bandura

first theorized, these experiences are found to be the most influential factor in a teacher's development of self-efficacy (O'Neill & Stephenson, 2012; Ronfeldt & Reininger, 2012). Enacting performance accomplishments within a supportive environment may create the feeling of goal attainability and thereby most dramatically increase teachers' sense of self-efficacy. Data gathered from more than 1000 student teachers showed that mastery-level experiences such as taking full control of the classroom, including handling behavior and discipline issues, was identified as the strongest contributor to feelings of preparedness (Ronfeldt & Reininger, 2012). Similarly, in-service teachers studied by Kanuika (2012) were tasked with implementing a literacy reform and at first exhibited frustration and resistance; however, as they experienced instances of success while using the program, their senses of self-efficacy were reported to grow with the participants eventually becoming advocates for the literacy program. Neilson, Barry, and Staab (2008) reported that Illinois teachers benefited from "focused and deep" experiences with a new literacy reform initiative, which allowed them to build their competency and validate it via student achievement records.

While mastery experiences were initially understood as those where an individual takes action and experiences a result as a direct result of that action, Palmer's (2006) research expands that definition in the context of pre-service teacher education. He found that mastery experiences might also encompass the mastery of understanding content knowledge and the mastery of obtaining pedagogical content knowledge. While his research did not find enactive mastery, as it is typically understood, to be a strong factor in pre-service teacher self-efficacy, it is important to note that his research was conducted

in an environment where enactive experiences were not offered, thus participant responses may have inadvertently been limited by course experiences.

For student teachers, mastery experiences are essential to developing strong self-efficacy beliefs, and careful attention must be paid to attribution (Woolfolk Hoy & Burke Spero, 2005). Too much intervention can cause attribution to be placed on the mentor teacher, not the student teacher, and this is theoretically related to Bandura's statement that "successes achieved with external assistance carry little efficacy value because they are likely to be credited to external aids rather than to personal capabilities" (1997, p. 83).

Coupled with mastery experience and perhaps improving its power to shape self-efficacy beliefs is performance feedback. Timely, detailed feedback is expected to positively impact self-efficacy beliefs by allowing one to quickly adjust effort and task approach as needed. This limits failure and positions the actor in a position of power (Bandura, 1997). For a student teacher, this is particularly important. Mentor teacher's feedback has the ability to guide student teachers in their self-efficacy development.

Vicarious Experiences

Vicarious experiences are a second source of efficacy information, and while they are not typically considered as powerful as mastery experiences, they are particularly useful in situations where one has very little previous experience on which to form a belief (Bandura, 1997), such as one's student teaching experience. When uncertainty is high, seeing a similar model perform allows one to make judgments of self-efficacy (Bandura, 1997). Vicarious experiences come in multiple formats and include peer modeling and self-modeling. A particularly helpful form of vicarious experience is peer modeling coupled with cognitive modeling through talk. For novices, this allows the

internal processes that guide agentic behavior to be made explicit. Self-modeling through the use of cognitive rehearsal has also been found to be effective for novices in particular.

Vicarious experiences in teacher research. Creating opportunities for teachers to engage in vicarious experiences – that is to see the required level of rigor successfully modeled by a peer – is another way teachers might increase their levels of perceived self-efficacy and thereby increase their students' success. This source has been found to be especially helpful for pre-service teachers as they become involved in teaching activities for which they have no previous experience, particularly related to classroom management (Mulholland & Wallace, 2001). Additionally, a combination of mastery experiences, coupled with vicarious experiences may contribute to growth in an educator's sense of self-efficacy, and the paired experiences may result in more powerful gains than either self-efficacy source alone (Bautista, 2011). Palmer's (2006) research introduced an additional type of modeling to teacher education research, simulated modeling, which involves role play in which a pre-service teacher enacts the role of student while a university instructor takes on the role of in-service teacher.

Teachers tasked with a literacy reform initiative funded by the Reading Education Act found that literacy coaches who implemented literacy practices within the teachers' own classrooms reported feelings of self-efficacy – for them, the research-based practices to achieve literacy improvements were transformed from theoretical to practical and achievable when they saw them performed by a professional peer (Nielsen, Barry, & Staab, 2008). In a study of pre-service teachers, Bautista (2011) found that employing a variety of vicarious experiences, in combination with mastery experiences, was extremely effective in increasing participants' senses of self-efficacy. Drawing from Palmer's

(2006) expanded description of vicarious experiences, she led pre-service teachers in engaging in cognitive self-modeling, symbolic modeling and simulated modeling. Her results suggest that providing a variety of vicarious experiences may increase pre-service teachers' senses of self-efficacy in multiple dimensions.

Pre-service teacher education might capitalize on the positive effects of vicarious experience by providing student teachers the time needed to meet with and observe master teachers. Ideally, student teachers, particularly those who are co-teaching, should be placed in the classrooms of master teachers. However, over-reliance on vicarious experiences must be avoided to ensure that student teachers are able to experience mastery and appropriately attribute mastery experiences to their own efforts.

Verbal Persuasion

Verbal persuasion, Bandura notes, "may be limited in its power to create enduring increases in perceived efficacy, but it can bolster self-change if the positive appraisal is within realistic bounds" (1997, p 101). This is particularly true in the case of novices, and the type of verbal feedback given has efficacy implications. Evaluative feedback that emphasizes gains bolsters efficacy, while evaluative feedback that emphasizes where improvement is needed negatively impacts it.

Verbal persuasion in teacher research. Opportunities for peer validation and discussion through social verbal persuasion were reported in Nielsen et al.'s (2008) study, and this was found to support a strong sense of self-efficacy. This idea is connected to the concept of network centrality researched by Vardaman et al. (2012). Those that have more professional connections and avenues to engage in dialogue perceive themselves as more efficacious during times of change, and for student teachers the transitional period

between “student” and “teacher” is likely one of the largest changes he or she will experience. For student teachers, the power of verbal persuasion is reported to be a powerful source of self-efficacy, and Knoblauch and Woolfolk Hoy (2008) suggested that one reason a mentor teacher’s perceived level of self-efficacy impacts student teachers may relate to the amount of verbal feedback provided by these teachers, which was likely more robust than others. Student feedback also can serve as a source of verbal persuasion to student teachers by way of student engagement and enthusiasm (Mulholland & Wallace, 2001). In a 2012 study, verbal feedback from mentor teachers was found to be aligned with mastery experience in its impact on a student teacher’s sense of self-efficacy, so for novices, this source must not be overlooked (O’Neill & Stephenson, 2012).

Emotional Arousal

The final source of efficacy information, Bandura notes, is emotional arousal (1986, 1997). An individual’s affective state impacts one’s ability to calm fears, take action, and interpret physiological responses to various stimuli (1997). Interpretation, Bandura notes, is very important because one can easily interpret a racing heart as excitement and anticipation or as nervousness, which impacts thought processes and related behavior (1997). While emotion exerts an impact, it is assumed to be of less importance that other self-efficacy sources (Bandura, 1997; O’Neill & Stephenson, 2012).

Emotional arousal in teacher research. Emotional arousal – primarily fear reduction – is a little researched concept as it relates to teacher self-efficacy, possibly because research has shown it to be less important than other efficacy sources (Mulholland & Wallace, 2001; O’Neill & Stephenson, 2012). Bandura (1977) explained

that people are most efficacious and most likely to perceive themselves as efficacious when they are not "beset by aversive arousal" (p. 198) due to a threatening situation. Therefore, mitigating negative feelings and fear is essential. To do this, putting teachers in a position of control likely will help (Lick, 2000). For a student teacher, the university supervisor can serve as a mitigator of fears by viewing and presenting him or herself as an advocate and mentor, not simply an evaluator.

These four sources of efficacy information are interrelated and work together to shape the construct we know as self-efficacy. For example, emotional arousal may be highly reliant on past mastery experiences and subsequent verbal persuasion, while mastery experiences may be directly paired vicarious experience. This interrelated model means that while some experiences exhibit a stronger impact on self-efficacy development, none should be overlooked.

Self-Efficacy Measurement

Self-efficacy has been notoriously difficult to measure, often because the construct itself is misunderstood, and researchers seeking to measure it mistakenly include items that measure self-esteem or general self-worth, which are conceptually different than self-efficacy (Bandura, 1997, 2006; Klassen, et al, 2011). For example, Bandura notes that self-efficacy is distinct from locus of control, self-esteem, and self-concept (Bandura, 1997, 2006) and that none of these constructs possess the predictive power of self-efficacy. He further clarifies that when factor analysis removes questions that actually integrate self-efficacy measurements from studies of self-concept that masquerade as self-efficacy, the constructs' predictive power is almost entirely removed. Other researchers have contributed to this distinction, emphasizing that self-efficacy

judgments are made in regard to a specific task, so they are contextual, while self-esteem represents a more holistic judgment of self-liking (Woolfolk Hoy, Demerath & Pape, 2001). This distinction is important when creating measurement instruments such as surveys and while constructing interview questions, because self-efficacy has been statistically shown to consistently predict future behavior, while other constructs are less reliable (Bandura, 1997). In 2011, Klassen et al. reviewed ten years' worth of literature related to self-efficacy measurement and recognized a need to return to Bandura's original conceptualization and avoid muddling constructs by way of convoluted instruments and questioning techniques.

Bandura's Guidelines for Self-Efficacy Scales

Attempting to clear the waters surrounding the construct said to be "the foundation of human agency" (Bandura, 2001 p. 10), and twenty years after introducing self-efficacy in *Self-Efficacy: Toward a Unifying Theory of Behavioral Change*, Bandura issued directions to quantitatively measure the construct (Bandura, 1997). These directions were further detailed nine years later (Bandura, 2006). In both instances, he cautioned against scales that attempt to yield a self-efficacy judgment based on a single item, citing research that shows single-item measures are both weakly related to more robust measures and also low in predictive ability (Bandura, 1997/2006).

Noting that self-efficacy beliefs vary in their level, generality, and strength, Bandura suggests a contextual understanding of the phenomena surrounding the self-efficacy judgment is important (Bandura, 1997). "There is no all-purpose measure of perceived self-efficacy" Bandura writes, in an authoritative chapter titled "Guide for Constructing Self Efficacy Scales" (2006) because such a generalization disconnects the

measurement from the situation and related circumstance. Instead, instruments "must be tailored to the particular domain of functioning that is the object of interest" (Bandura, 2006, p. 308). Supplementing this chapter, Bandura shared 13 example self-efficacy scales that are tailored to specific domains of functioning, such as teaching, driving a car, exercising, and parenting, to name a few.

Specific wording for survey items is suggested, with "*can do*" urged as the correct wording because it is a judgment of capability rather than intent, as is "*will do*" (author's emphasis, Bandura, 1997, p. 43; Bandura, 2006, p. 308). Bandura also emphasizes the need for a variety of interval-based selections because too few choices results in a less sensitive instrument, writing "Including too few steps loses differentiating information because people who use the same response category would differ if intermediate steps were included" (Bandura, 1997, p. 44). Interval measurement scales that span from one to ten or from ten to 100 are suggested.

Implementation directions also are provided, with Bandura noting that individuals must be instructed to judge their current capabilities, not their future expectations. To minimize response bias, scales also should be labeled generically, with care taken to avoid labels that identify the construct being measured (Bandura, 2006). A sample item is suggested as a way to acclimate participants to the instrument and its wording. To determine efficacy strength, scores are added and then divided by the total number of items. Higher levels of efficacy are indicated by a higher total score, and vice versa. For efficacy scales that measure efficacy in multiple domains, the process will be repeated for each domain of scores (Bandura, 1997).

Instruments

As previously noted, self-efficacy in teacher education research is a topic of much interest due to research that suggests this single construct impacts teachers' classroom management, the learning experiences they create for their students, the level of parental involvement they elicit and their overall professional commitment (Bandura, 1997). With this in mind, several scales that adhere to construct measurement guidelines are discussed in detail, along with some historical scales that foreshadowed their development. Contemporary measurements that do not adhere to measurement guidelines, those that confuse self-esteem or locus of control with self-efficacy, of those that were found to have low validity and/or reliability levels also will not be addressed here, though a thorough discussion of instruments can be found at Professor Anita Woolfolk Hoy's university website (People.EHE.OSU.edu/Ahoy/Research/Instruments).

RAND Corporation study. In 1976, the RAND Corporation was hired by the Los Angeles Unified School District to assess the reading gains in minority populations who were exposed to the School Preferred Reading Program (Armor, et al, 1976). This study showed that teacher efficacy, as measured by two items on the RAND survey, was strongly related to gains in African-American students' reading performance. Later criticism focused on the mislabeling of this measure - rather than measuring teacher efficacy, researchers suggested this survey actually was better aligned with Bandura's theory of self-efficacy (Henson, et al, 2001). This is an important distinction, as efficacy refers to one's effectiveness in relation to a pre-defined measure (usually a standardized assessment), while self-efficacy refers to one's judgment about his or her own capabilities. This discovery led to widespread interest in teacher self-efficacy. A close

reading of the Armor, et al (1976) report demonstrates that the construct discussed does seem best aligned with one's perceived self-efficacy and not ones' effectiveness, as the term *efficacy* would indicate, making this the first known study of teacher self-efficacy and its relationship to student achievement.

While this survey provided an avenue to begin exploring teacher self-efficacy, it was not sufficient, likely because the construct was introduced unintentionally. It did not explore the construct in a contextualized way, and the item wording was such that it allowed a limited number of response selections (1-5) and allowed for a middle-ground response, which influences response bias. In response, alternative measures were introduced which intended to provide a more robust understanding of the construct.

Gibson and Dembo scale. The Gibson and Dembo scale was introduced in 1984 after researchers noted that the RAND survey items intended to measure teacher efficacy were actually a better fit for Bandura's theory of self-efficacy (Henson, et al, 2001), but did not provide a detailed understanding of the facets of teacher self-efficacy and potential contextual influences. Gibson and Dembo tried to remedy this, presenting a 16-item measure that includes two factors: general teaching efficacy and personal teaching efficacy.

In a 2001 study of self-efficacy scales, Henson, Kogan, and Vacah-Haase explained that the Gibson and Dembo scale was the leading measure of teacher self-efficacy at the time of publication (2001). In a review of literature surrounding the Gibson and Dembo scale, Henson, et al (2001) write "the TES (Gibson and Dembo scale) was the first major attempt to empirically develop a data collection instrument to tap into this potentially powerful variable in teachers" (p. 405), and this scale was used in studies

that first linked teacher self-efficacy to important student learning outcomes and to teachers' professional success (Henson, et al., 2001; Tschannen-Moran, Woolfolk Hoy & Hoy, 1998).

Despite the scale's widespread acceptance, in 1998, Tschanen-Moran, et al, identified inconsistencies in the scale, noting concerns with factor analysis and reliability. In response, the researchers proposed a new model (Tschannen-Moran, et al, 1998) and measure of teacher efficacy (Tschannen-Moran & Hoy, 2005), that is said to address issues of validity, reliability, and contextualized self-efficacy while closely adhering to Bandura's original construct and guidelines (Duffin, et al.; Klassen, et al, 2011; Klassen & Chiu, 2010; Woolfolk Hoy & Spero, 2005).

Ohio State University TSES. The most commonly used teacher self-efficacy scale was introduced in 2005 after being thoroughly tested by leading self-efficacy researchers. Mindful of measurement issues presented by previous scales as well as Bandura's directives regarding self-efficacy scale creation, the researchers carefully tested an initial pool of more than 100 items. Former teachers reviewed items to ensure face validity of items, and content validity was determined through tests that correlated results with other, established SE instruments. Participants included hundreds of in-service and pre-service teachers. Ultimately, the scale was reduced to its current 24 item scale referred to as the long form, and its 12 item iteration referred to as the short form. In a 2011 literature review, Klassen et al. recommend this scale, saying "For researchers looking to incorporate existing measures of domain-general teacher efficacy measures, we recommend the teachers' self and collective efficacy measures created by Tschannen-Moran and colleagues. These measures show considerably more congruence with self-

efficacy theory than many of the other measures in the studies we've reviewed" (Klassen et al., 2011, p. 40).

Other research has established the validity of the instrument and reliability of results in the United States and abroad (Klassen & Chiu, 2010; Klassen et al., 2009). In a 2007 study, Tschannen-Moran and Woolfolk Hoy found reliability co-efficients of .92-.95 for the long form in their study of novice and experienced teachers' levels of self-efficacy.

Bandura's teacher self-efficacy scale. In 1997, Bandura himself created an instrument to measure teacher self-efficacy (Hoy, n.d.). The document was unpublished, though was "quietly circulated", until a leading self-efficacy researcher shared it through her university-affiliated website at The Ohio State University (Hoy, n.d.). The scale consists of 30 questions intended to measure teacher self-efficacy across multiple domains affiliated with the teaching profession, differentiating aspects of the profession such as instructional self-efficacy from disciplinary self-efficacy. A subsequent scale was published in 2006, consisting of 28 questions also intended to measure self-efficacy across six domains related to teaching (Bandura, 2006).

Both Bandura scales present participants a range of response scores, from 0 to 100, and the 2006 scale is assumed to possess face validity as discussed by Bandura and to adhere to the constructs' intent, making it a valid measure. The 2006 scale is a modified version of the 1997 scale, possessing two fewer questions - one question related to instructional efficacy and one question related to community involvement have been deleted. While no information explaining this change is available, it seems likely that these two questions interfered with the instrument's validity and were thus removed. For

example, the deleted instructional efficacy question asked participants to rate their ability to affect class size. This may not be an accurate measure of instructional self-efficacy, and it likely is an area where teachers possess no actual ability to effect change, thus resulting in an invalid measurement and contributing to invalid results.

The Bandura scale has not been widely used (Woolfolk Hoy & Burke Spero, 2005; Burke Spero & Hoy, 2003); however, score reliability has been more than .90 in the few studies that sought to determine this measure (Woolfolk Hoy & Burke Spero, 2005). Additionally, criterion-related concurrent validity was determined for the Bandura scale in reference to the Gibson & Dembo and OSU scales. From the perspective of a traditional quantitative researcher, one potential shortcoming to the limited number of studies using the Bandura scale and thus the small number of participants is that factor analysis has not been conducted on the instrument. While Bandura did intentionally divide his scale into domains of functioning, statistical analysis on these structures are not available. Regardless, the high level of concurrent validity as demonstrated by positive correlations between different measures indicates that Bandura's instrument is a worthwhile one, and it presents a strong option for a research seeking descriptive measures of self-efficacy levels.

Qualitative Approaches to Exploring Self-Efficacy Development

Teacher self-efficacy has traditionally been measured quantitatively. However, self-efficacy also is rightly explored through qualitative measures. After all, understanding contextual influences and experiences that affect feelings of self-efficacy are a natural fit for qualitative inquiry. In a 2004 interview, A. Woolfolk Hoy stated "I believe qualitative methods are appropriate for an exploration of factors that mediate

efficacy development and cultural influences on the construction of self-efficacy beliefs" (Shaughnessy, p. 155). Speaking specifically to the study of pre-service teachers, Burke Spero and Woolfolk Hoy noted that qualitative methods are particularly appropriate because "these methods allow the sources of efficacy to emerge from the data" (2003, p. 8). Despite this fit, there are few strictly qualitative studies published. In 2011, in an exhaustive review of the literature, Klassen et al. found just 8.7 percent of studies published between 1998 and 2009 were qualitative. Furthermore, even studies that purport to be qualitative in nature often use traditional quantitative methods to triangulate their data. For example, in an article meant to validate qualitative methods, Burke Spero & Woolfolk-Hoy (2003) included quantitative scales to supplement their interview data.

In what may be the first example of qualitative self-efficacy exploration, Ashton and Webb (1986) utilized observations, interviews, and questionnaires, as well as statistical measures of self-efficacy. Their research was instrumental in providing a glimpse of this construct's importance, because they were able to show, by way of composite portraits and chapters of thick description, what classrooms ran by teachers at varying levels of self-efficacy look like.

A rare example of purely qualitative and influential self-efficacy research, Mulholland and Wallace (2001) conducted a longitudinal case study investigation focused on the self-efficacy development of a single student teacher, following her into her in-service years. Their research utilized content analysis, by way of a written journal, informal interviews, and observations. Using these data sources, a narrative was composed and later analyzed. This study confirmed the importance of mastery

experiences and social persuasion for early career teachers (both pre-service and novice) and demonstrated less importance related to affective and physiological states.

In a study that found three developmental phases of self-efficacy among pre-service student teachers, a variety of methodologies were used (Burke Spero & Woolfolk Hoy, 2003). Interviews comprised the primary data collection method, though observations and quantitative surveys were used as well. Within interviews, open-ended exploratory questions were posed in addition to case study discussion methods used. The interview data were analyzed both qualitatively and quantitatively, with qualitative analysis resulting in narratives that were then coded to determine themes. Frequency counts were then used to identify self-efficacy phases called "surviving the unknown," "equilibrium," and "comfort with the other" (Burke Spero & Woolfolk-Hoy, 2003, pp. 22-28). Survey results were used to demonstrate overall growth, with interviews providing the insight that established growth patterns and relevant self-efficacy sources for each phase.

Conclusions

Due to its adherence to Bandura's guidelines for self-efficacy scales and its widespread acceptance by the community of scholars who study self-efficacy, the Ohio State Teacher Self-Efficacy Scale was used in this study (Tschannen-Moran & Woolfolk Hoy, 2001). This particular instrument exhibits high levels of validity (Klassen & Chiu, 2010; Klassen et al, 2009; Tschannen-Moran & Woolfolk Hoy, 2001; Woolfolk Hoy & Burke Spero, 2005) and has been shown to produce reliable results with populations similar to the one I studied (Pendergast, Garvis & Keogh, 2011; Tschannen-Moran & Woolfolk Hoy, 2007).

Theoretical Perspective

This study is grounded in a set of beliefs that stem from a combination of social cognitive and social constructivist assumptions, which might be collectively defined as pragmatic in nature. Because pragmatism does not have a set of associated methods as do the realist and interpretevist research paradigms, I find it necessary to discuss the influence of each as they are united by pragmatism.

John Dewey (1982/1925) suggests that pragmatism is the American philosophical tradition, representing the adaptation of classic ways of thinking and knowing to the realities of American life. American thought, Dewey suggests, straddles the individualistic and collective, and "the individual which American thought idealizes is not an individual per se, an individual fixed in isolation, but an individual who evolves and develops in a natural and human environment, an individual who can be educated" (p. 40). This lays the groundwork for an important element of contemporary pragmatic thought, which is that both the objective and subjective ways of understanding are meaningful with patterns detectable at the collective level and understood at the individual level (Creswell & Plano Clark, 2007; Morgan, 2007, 2014). As Dewey suggests, it is the impact of the environment and its ever changing nature that makes gaining subjective, contextualized knowledge so important within this tradition in addition to the collection of broader data that can further future action and enable desirable consequences.

Dewey cites the works of Charles Pierce and credits him with introducing a second major element of what is now contemporary pragmatic thought, in that the focus of pragmatism is future-oriented, thus the pragmatists' interest lies in the results and

outcomes of action within a given context. Pierce writes that "the rational meaning of every proposition lies in the future…" (Pierce, n.d. as cited by Dewey, 1982/1925, p. 15). Dewey expanded on these ideas explaining that action is an intermediary rather than the focus of pragmatism, allowing for understanding to be gained when activity takes place and when results are assessed in a real world setting. In order to interpret results in a meaningful way, they must be "applied to existence" or contextually enacted (Dewey, 1982/1925, p. 25).

Asserting that pragmatism reflects the ever-evolving nature of our world, Dewey says this future oriented focus is reflective of the nature of reality because it does not attempt to ascertain an inflexible truth, and on considering the mind-body split, Dewey quotes William James who wrote "the popular note [idea] that 'Science' is forced on the mind ab extra [i.e. from outside], and that our interests have nothing to do with its constructions, is utterly absurd" (as cited in Dewey, 1982/1925, p. 37). Furthering the idea that truth is neither stable nor generalizable, Dewey writes "absolute truth is an ideal which cannot be realized, at least not until all the facts have been registered, or as James says 'bagged,' and until it is no longer possible to make other observations and other experiences" (p. 32). This presents an additional principle of modern pragmatism, which is that generalizability is not pragmatism's end goal (Cherryholmes, 1992; Morgan, 2007) because, from Dewey's perspective, the world is never stable enough to allow action to be tested in every possible experience, or from Cherryholmes' perspective, because the line between objective and subjective knowledge is so blurred one can never make a claim of a stable, objective reality.

With this in mind, pragmatism is an appropriate theoretical orientation to the study of self-efficacy theory, as neither the traditions aligned with positivism nor those aligned with interpretevism adequately reflect the nature of social cognitive theory; additionally the proposed study embodies pragmatic goals, seeking to understand action in a real-world context and to ascertain the workability of current practice as it relates to probable future outcomes. This future orientation is particularly important in the context of this study, as the results presented in this report may allow teacher education programs to modify aspects of their programs – either coursework elements or site selection requirements, for example – that can positively impact the future of their student teacher programs.

Social cognitivist beliefs of *what is* and *what can be known* stem from the positivist tradition, seeking to understand "what's really going on the world, what can we establish with some degree of certainty, and what are the plausible explanations for verifiable patterns," (Patton, 2002, p. 132). Social cognitive theory asserts that self-efficacy is a construct that is both measurable and predictive (Bandura, 2006). Consequently, social cognitivists often use specially-tailored and validated instruments coupled with statistical data to inform an understanding of reality (Bandura, 2006; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). However, Bandura frequently acknowledges the role of environmental influences in shaping both self-efficacy theory, and the larger social cognitive theory in which it resides (Bandura, 1986, 1997, 2001), which presents an opportunity for constructivist interpretations of this reciprocally determined construct within the social cognitive tradition, and scholars have issued open

calls for the construct to be explored in this way (Klassen, Tze, Betts, & Gordon, 2011; Shaughnessy, 2004; Tschannen-Moran, Woolfolk Hoy & Hoy, 1998).

Constructivists ask how have participants constructed and enacted reality (Patton, 2002), which asserts that reality is not a fixed entity – it is experienced differently by different participants and in different situations. Social constructivists take this idea one step beyond the individual, acknowledging the role of environment including other social participants in shaping one's conception of reality. This understanding of constructivism is particularly appropriate as a lens for understanding the construction of self-efficacy, because while it is considered a measurable construct (Bandura, 2006; Tschannen-Moren, Woolfolk Hoy, & Hoy, 1998), it is shaped by an individual's interactions with environmental influences, primarily including other participants.

Unifying these two seemingly disparate theories and allowing this theory to be explored in a way that is authentic to its own assumptions (there is a thing to be measured; this thing is impacted through social experiences) is pragmatism. Aligned with the dualistic nature of social cognitive theory at large, and self-efficacy theory specifically, is the pragmatic belief that "each individual's knowledge is unique because it is based on individual experience, while [pragmatists also assert] that much of this knowledge is socially shared because it comes from socially shared experiences" (Morgan, 2014, p. 39). Thus, according to Morgan (2007, 2014) and Cherryholmes (1992), pragmatists are uniquely positioned to objectively take stock of the world while also exploring the lived experiences that make up the larger whole.

Morgan provides contemporary pragmatists a common language to describe the key principles that allow this movement between the objective and subjective and the

related analytic processes to unfold. First, is intersubjectivity. Intersubjectivity is a multi-leveled construct, referring first to the relationship between a researcher and the researched, representing that a pragmatic researcher will claim neither complete objectivity nor complete subjectivity. Rather, he or she will work "back and forth between various frames of reference" depending on what is appropriate in a given situation (Morgan, 2007, p. 71). Intersubjectivity represents another important level as well - the intersection of ontological beliefs. Balancing ideas of an external, measurable and predictable reality with competing ideas of a personal, socially-constructed, and thus individually unique reality enters intersubjectivity. Morgan (2007) writes that intersubjectivity allows the pragmatic theorist to say "there is no problem with asserting both that there is a single "real world" and that all individuals have their own unique interpretations of that world" (p. 72). Thus, a pragmatist is likely to balance objective versions of truth with a subjective interpretation of such knowledge in an analytic process called abduction.

Morgan (2007) notes that "one of the most common uses of abduction in pragmatic reasoning is to further a process of inquiry that evaluates the results of prior inductions through their ability to predict the workability of future lines of behavior" (p. 71), and he cites examples of movement between qualitative studies to quantitative, and vice versa. This movement and the resulting logical process also can take place within a single study that uses sequential methods to aid in generating understanding and knowledge. This explanation of abduction is particularly appropriate for my own line of thinking, as my belief is that knowledge claims can be made based on deductive or inductive logical processes, but are strongest and most credible after intersubjective

exploration that results in consistent and/or complementary findings between the objective and subjective. Within the proposed study, qualitative methods to gain an understanding of student teacher's development as teachers and the related effects on self-efficacy are paired with quantitative measures that measure the construct, allowing for the two data types to be unified and illuminate each other, allowing an opportunity for deeper understanding and explanation. Furthermore, this study seeks to contribute knowledge that will allow others to determine the workability of this method of student teaching.

With this in mind, mixed research methods were used to explore the research questions posed.

CHAPTER THREE: METHODS

This study had two goals: to understand and document the experience of co-teaching as a student teacher as it is currently being conducted by universities in the State of Indiana and to understand how the documented experiences impact a pre-service student teacher's developing sense of self-efficacy related to teaching. To address these goals, I asked three research questions. First, how do student teachers engaged in a co-teaching student teaching arrangement experience the classroom role of teacher within this setting? Second, how much does co-teaching as a student teacher impact a pre-service student teachers' sense of self-efficacy related to teaching? And finally, what are the experiences of co-teaching as a student teacher that inhibit, enhance, or maintain one's sense of self-efficacy related to teaching?

This study, while qualitative-dominant in its purpose to gain understanding and in several of the related methods used, also used quantitative methods and related data to address these questions. Additionally, the findings generated through quantitative methods used to ascertain how much co-teaching impacts student co-teacher's senses of self-efficacy also were used as a sampling technique that allowed me to purposefully select participants to address my third research question that focuses on the experiences that result in various levels of self-efficacy growth or maintenance. For this reason, I will

first provide an overview of the three data collection methods being used, then I will provide a detailed discussion of the research settings and the individual methods used.

Research Design and Methods Overview

This design's overall purpose might best be labeled as an explanatory case study, with the goal of "yielding an enriched, elaborated understanding of that phenomenon" (Greene, Caracelli & Graham, 1989, p. 258). To understand this topic, a sequential, mixed methods design was utilized in a nested case study approach that allowed me to understand this topic at the phenomenon level and at the individual participant levels that generate increased understanding of the phenomenon (Stake, 2006). The phenomenon explored was the experience of co-teaching as a student teacher. All participants and the derived data were used to understand and describe this phenomenon, resulting in the case study's first and overarching unit of analysis. Then, individual participants and their related data were used to gain an in-depth understanding of co-teaching as experienced by student teachers who experienced various levels of self-efficacy development during their time co-teaching, resulting in nested cases representing three additional units of analysis: high self-efficacy growth, self-efficacy stability, and declining self-efficacy. This individual case-level approach allowed me to provide a thick description (Lincoln & Guba, 1985), highlighting the various circumstances that may result in various levels of self-efficacy change.

To understand the phenomenon level unit of analysis and address Research Question 1 (How do student teachers engaged in a co-teaching student teaching arrangement experience the classroom role of teacher with this setting?) two primary methods were used to generate data. First, a quantitative survey instrument (Tschannen-

Moran & Woolfolk Hoy, 2001) that measures teacher self-efficacy was administered pre and post student teaching. Then, a focus group was conducted to gather qualitative data about the experience of co-teaching. Also contributing to an understanding of the phenomenon level and simultaneously addressing Research Question 2 (How much does co-teaching as a student teacher impact a pre-service student teacher's sense of self-efficacy related to teaching?) are the results from the self-efficacy scale. The quantitative survey instrument also played a second, important role in this research: it was used to invite participants to contribute data that allowed the individual level of this case study research to proceed.

After analyzing the data from the survey, student teachers exhibiting various levels of self-efficacy change or stability were invited to participate in interviews. Participants were purposefully selected based on the change in their reported self-efficacy scores, and participants exhibiting the most extreme change scores were invited to interview in addition to a sample of participants who exhibited no change at all. This allowed me to contribute understanding regarding the individual level units of analysis in this case study research, and it addressed Research Question 3 (What are the experiences of co-teaching as a student teacher than inhibit, enhance, or maintain one's sense of self-efficacy related to teaching?).

Context and Research Sites

This case study research included participants from two universities that participated in the co-teaching approach to student teaching. Both the university settings and the participant groups were purposefully selected because they are believed to represent the larger population of student teachers in the State of Indiana, and because

they engaged in co-teaching during the Spring 2015 academic semester. These characteristics also represent the bounds of this case study, as time, geography and conditions all are necessary boundaries of case study research (Yin, 2014).

Context

In the State of Indiana, co-teaching has become an increasingly popular method of completing the student teaching requirement of a K-12 teaching licensure program. This change in student teaching expectations initially was due to increased teacher accountability expectations and evaluation procedures that link teacher pay raises and retention directly to student performance on standardized tests, per Indiana Code 20-28-11.5-4 (Staff Performance Evaluations, 2013). This change made placing student teachers increasingly difficult, so an alternative placement style was sought out (Bakeman, 2013; Butrymowicz, 2013). While a recent news article shows the majority of Indiana teachers – 87%, in fact – fared well under the new accountability measures (Van Wyk, 2014), co-teaching still remains the preferred method of student teaching in the state at this time, with more programs moving toward this approach each semester. Co-teaching, with its assumption that the mentor teacher remain actively involved in the teaching process throughout the entire placement, is believed to benefit all involved parties, allowing the mentor teachers to remain involved in a way that ensures their evaluations are aligned with their abilities, providing high levels of support of K-12 students, and also providing the student teachers an opportunity to practice and develop their skills (Bacharach et al., 2010; Diana Jr., 2014; Merk et al, 2013).

Site Selection

With this in mind, students from two universities located in the State of Indiana were invited to participate in this research study of co-teaching and self-efficacy development. These sites were purposefully selected because they represent the two major types of higher education available in the state and recognized on the State's Commission for Higher Education list of colleges: public and private non-profit universities (Indiana Commission, 2009). Both universities also follow a co-teaching model derived from the St. Cloud State University approach (Bacharach et al., 2010) that features a series of implementation models and a structured induction to this student teaching model.

Public University. The first university, a public university that serves more than 40,000 students overall, had 85 students who were invited to participate in the spring, 2015, study. According to a representative from the university's Center for Career Opportunities, 88% of graduates from the School of Education are working in a teaching or teaching-related position within 6 months of graduation. This school has participated in a 16-week-long co-teaching placement with its elementary education majors since the 2012-2013 academic year, and it piloted a co-teaching option with secondary education majors during the spring 2015 semester. All elementary education majors were invited to participate, and all English Education majors who had chosen to co-teach were invited as well. At this university, co-teaching training takes place in a one-day workshop where student and mentor teachers come together to learn about the process and to begin building a professional relationship.

In the end, 11 student teachers participated from this university – ten elementary education majors, and one secondary English education major. The students all were of traditional college-age, with a mean age of 21.36, and their gender makeup is reflective of teachers in the State of Indiana, with 91 percent being female.

Private University. The second university, a private, non-profit university, serves more than 2,500 students overall, and has 32 students who were invited to participate in the spring, 2015, study. According to representatives from this school, historically 92% of students who graduate from this program go on to become classroom teachers. This school has participated in co-teaching with all student teachers since the 2013-2014 academic year. This school also offers a year-long student teaching experience that also involves co-teaching, and three student teachers are participating in that option. Student teachers who opted for the single semester, 16-week student teaching experience were invited to participate in this study, representing both elementary and secondary level student teachers. Year-long student teachers were not invited, as their experience is believed to be fundamentally different than those who participate in the more popular 16-week option. At this university, co-teaching training is taught in courses students take the spring before they student teach and is reiterated in a day-long workshop all student teachers attend. Both student and mentor teachers also are provided a detailed handbook that reviews co-teaching models and tips.

From this university, 16 student teachers chose to participate in the study. Seven are elementary education majors, and the rest come from various secondary level majors including English Education, Math Education, and Music Education. Two student teachers' majors were not provided, and they could not be reached to ascertain that

information. The students were of traditional college-age with the exception of one student teacher who was a 33 year old female. Overall, the group had a mean age of 23.5, and their gender makeup is reflective of teachers in the State of Indiana, with 88 percent being female.

Data Collection Methods

Data were collected in three phases by utilizing both quantitative and qualitative approaches (see Appendix A), with the quantitative data also used to select a sample for the interview portion of the qualitative research. Numerical data were derived from a survey instrument measuring teacher self-efficacy before and after student teaching. Qualitative narrative data were derived from a focus group. Additional qualitative narrative data were generated through interviews, whose participants were selected based on the results of the quantitative data analysis. Below, sampling and methodological procedures are explained.

Pre-Service Teacher Sampling Procedures

Purposive sampling techniques were used for all phases of this study, because it was necessary to first identify potential participants based upon specific characteristics I wished to study. To select and invite a sample to take part in both the quantitative phase of this research, 115 student teachers were invited based on their universities' participation in co-teaching as a means of student teaching, their universities' utilization of a model consistent with that presented by SCSU, their location in the state of Indiana, and their institution's representativeness of the major types of institutions of higher education that serve traditionally-aged college students in the State of Indiana (public and private non-profit land-based universities). Focus group participants were randomly

invited from the purposefully-selected list of initial potential survey participants in hopes of gaining a sample that was representative of the overall participant pool.

Next, extreme case sampling based upon the results of the quantitative research phase was used to invite participants for the interview phase of this research. Extreme case sampling is used to "select cases from the extremes because they are potentially rich sources of information" (Johnson & Christensen, 2012, p. 236). Participants who exhibited the most extreme differences in self-efficacy development change scores were invited to participate. More specifically, extreme cases were selected based on the results of the teacher self-efficacy survey that are representative of the highest and lowest levels of self-efficacy change as well as self-efficacy stability. These extreme cases were asked to participate in interviews that focused primarily upon their personal experience of co-teaching, their self-efficacy related to teaching, and the experiences they believe impacted their self-efficacy related to teaching.

Sampling Size

To determine an appropriate sample size for the quantitative portion of this research, a power analysis for a matched-pairs t-test was conducted to ensure that a sample large enough to determine a statistically significant difference in self-efficacy change scores is secured. Based on the desire for a .8 power, which is considered appropriate for educational research (Cohen, 1988; Howell, 2011), an alpha of .05, and a moderate effect size of .5, a minimum of 27 participants were needed for this study. This number was achieved, and after 115 potential participants were invited to participate, 29 completed both the initial and final surveys. Two participants were disqualified because the data provided during the final survey were suspected of being invalid because both

participants completed the 24 survey items in less than one minute and chose the same response for all items, indicating the survey items were not actually read and thoughtfully answered.

For the focus group portion of this research, a sample of no more than 6 participants was desired so as to ensure maximum participation from all participants (Morgan, 1997). Because it was unlikely that all invitees would choose to participate, 14 survey participants were initially invited, and eight RSVP'd that that would attend, with six participants split between two groups ultimately participating. After learning of student teachers' geographic placements, I chose to split the focus groups into two separate meeting groups based on location. These focus group participants were a homogeneous group based on the criteria that they have experienced co-teaching as a student teacher using a similar model and they attended university and co-taught in the State of Indiana. This grouping method was appropriate for the study's purpose, and Morgan (1996) explains that homogeneously grouped focus group participants may contribute toward a free-flowing conversation and allow participants to interact with each other, while enabling the researcher to evaluate the degree of agreement or disagreement related to stated incidents and impressions.

Finally, based upon the results of the initial quantitative data analysis, purposeful case examples were selected and invited to interview. The quantitative data revealed that only one participant exhibited a large decline in self-efficacy related to teaching, defined as an amount that rounds to 2 scaled points, so one participant was invited to represent that category, and this participant was interviewed. Three participants demonstrated large self-efficacy growth, defined as an amount that rounds to two scaled points, and two of

the three participants were invited to participate in interviews, with one accepting. Three additional participants whose self-efficacy had remained steady also were invited to participate, and all three accepted and did participate. It is important to recognize that I intentionally invited more participants than were needed for this research because of possible scheduling conflicts that were anticipated due to the study's proximity to the participant's college graduation. I was surprised to find that more "stable" self-efficacy participants chose to be interviewed that I had anticipated, which caused me to select one interview to use as the basis for the case profile presented in chapter four. Ultimately, the profiled case was selected because it is high-interest due to the unique circumstances in which this student teacher found herself placed and because it is of personal interest to me since she is an English teacher, and English Education is my disciplinary major. The two other interview transcripts not used for the case level analysis were coded and included in the data used to address and triangulate findings for the phenomenon level of this case study.

Method 1: Teachers' Sense of Self-Efficacy Scale

First, a quantitative phase of research that utilized an instrument that measures pre-student teaching and post-student teaching self-efficacy scores was administered (see Appendix B). This instrument was introduced by the researcher to student teacher candidates about four weeks before student teaching began after required student-teacher meetings, so all potential participants had the opportunity to participate. Participants who were not in attendance were emailed an electronic copy of the instrument using the secure Qualtrics system and the accompanying information sheet and were given a chance to participate as well.

Data collection occurred again during the final three weeks of student teaching. Participants who had responded to the initial scale were sent an invitation to participate by way of a secure Qualtrics link. Some individuals were invited to participate in-person as well, as a group consisting of some of the original responders invited the researcher to attend a meeting where I was allowed to distribute the final instrument.

The results of this data collection phase were used to address the posed research questions by numerically capturing change in self-efficacy before and after student teaching, and these data also serve as a method of purposefully selecting the sample for a portion of the qualitative wave of research. Like other studies that have studied this construct (O'Neill & Stephenson, 2012; Pendegast, Garvis, & Keogh, 2011; Swan, Wolf, & Cano, 2011; Tschannen Moran & Hoy, 2007; Woodcock, 2011; Woolfolk Hoy & Spero, 2005;), scores were calculated based on a mean score for all items and expressed as a numeric value along the scale of 0-9.

Key quantitative data source and quality. To gather the quantitative data required by this research study, an instrument known as the Teacher's Sense of Efficacy Scale (TSES) was used (Tschannen-Moran & Woolfolk Hoy, 2001). The instrument consists of 24 items administered on a 9 point scale. The instrument's items can be broken into three subscales focused on instructional strategies, classroom management, and student engagement. However, response patterns for pre-service teachers have been found indistinct in these domains, likely as a result of limited practical experience, thus I followed advice to implement the scale as an overall self-efficacy score as is associated with the reported reliabilities (Tschannen-Moran & Woolfolk Hoy, 2001).

This instrument has been found both reliable and valid (Klassen & Chiu, 2010; Klassen et al., 2009; Tschannen-Moran & Woolfolk Hoy, 2001; Woolfolk Hoy & Burke Spero, 2005). During the scales' creation, its authors were mindful of measurement issues presented by previous scales, thus they carefully tested an initial pool of more than 100 items before narrowing the instrument down to its current form. Former teachers reviewed items to ensure face validity of items, and construct validity was determined through tests that correlated results with other, established SE instruments. Participants included hundreds of in-service and pre-service teachers. Ultimately, the scale was reduced to its current 24 item scale referred to as the long form, and its 12 item iteration referred to as the short form (Woolfolk Hoy & Burke Spero, 2005). In a 2011 literature review, Klassen et al. recommend this scale, saying "For researchers looking to incorporate existing measures of domain-general teacher efficacy measures, we recommend the teachers' self and collective efficacy measures created by Tschannen-Moran and colleagues. These measures show considerably more congruence with self-efficacy theory than many of the other measures in the studies we've reviewed" (Klassen et al., 2011, p. 40).

Reliabilities for the scaled data have ranged from .93 - .95 in groups that included pre-service teachers (Tschannen-Moran & Woolfolk Hoy, 2007), and in surveys of only pre-service teachers, reliability was found to range between .94 and .97 depending on how early or late into one's educational program the survey was administered (Pendergast, Garvis & Keogh, 2011). In my study, the survey's reliability, calculated based on results from the initial survey administration, was consistent with that found in previous studies, with a reliability of .95.

Quantitative methods theoretical grounding. This quantitative phase of data collection is reflective of assumptions grounded in social cognitive theory and related research traditions. For example, self-efficacy is assumed to be a construct that is predictive of effort in a particular domain and that can be captured quantitatively if an instrument is developed that adequately reflects a contextual understanding of the phenomena (Bandura, 1997, 2006). This particular instrument went through several rounds of careful testing that ascertained the construct validity of each item, thus it has been found to adequately reflect the phenomena of teaching in a K-12 school setting (Tschannen-Moran & Hoy, 2001). Additionally, Bandura issued particular guidelines for measuring the construct (2006), and the survey that was used for this proposed research study is aligned with those guidelines, garnering a recommendation from Klassen et al. (2011).

Method 2: Focus Group Interviews

To gather the qualitative data necessary to understand what it is like to become a teacher in this sort of environment and to understand the experiences that student teachers believe impacted their sense of self-efficacy, two methods were used featuring student co-teacher participants: a focus group and paired interviews. Focus group interviews are useful for both "learning how respondents talk about the phenomenon of interest" (Johnson & Christenson, 2012, p. 205). The focus group interviews centered on the experience of co-teaching and what it means to become a teacher in this type of environment. They were organized by topic, allowing participants to share their experiences, insights, and feelings in regard to open-ended questions that I posed (See Appendix C). Both focus groups took place during the weekend of April 11, which was

approximately 13 weeks into the 16 week student teaching experience for all participants. One focus group was held in a mid-sized Indiana city that is also a college town at a public library meeting room. Unfortunately, two participants who had initially planned to attend did not do so, so rather than function as a true focus group, this meeting turned into a one-on-one meeting between the interviewer and a single participant. Despite this complication, the data collected is rich, and I was able to overcome the obstacle of a single participant by taking on a more participatory role during the focus group, for example, by creating a name sign and descriptive "catch phrase" for myself (see Appendix D) in order to create a comfortable environment. The second focus group was held in a larger Indiana city and college town at a public library meeting room. Five participants were present, and a rich conversation ensued. Both focus group interviews were audio-recorded, and the data were transcribed. Immediately following the focus groups, initial impression memoing was conducted to ensure important observations and key points were recorded for future analysis.

Method 3: Semi-Structured Interviews

Finally, interviews with student teachers were conducted (See Appendix E). Six student teachers were invited to participate in interviews, with two exhibiting large positive self-efficacy growth, defined as two or more scaled points of growth, three exhibiting self-efficacy stability, and one exhibiting a large decline in reported self-efficacy, equaling two scaled points of decline. In the end, five of six invitees chose to participate, with one of the participants who exhibited large growth choosing to not attend the interview at the last minute. Despite this potential setback, the final sample represents the full spectrum of changes exhibited in the sample, and therefore the

purposeful sampling method was successful. During interviews, a semi-structured approach was used with planned questions focusing on the experiences of co-teaching that impact self-efficacy development and the specific experiences and environmental impacts that influenced various levels of self-efficacy change and/or stagnation. Interviews took approximately 45 minutes and pre-planned questions were based on the general experience of co-teaching and its relation to aspects of self-efficacy theory, with special attention paid to the factors found by Tschannen-Moran and Woolfolk Hoy (2001) and proposed by Bandura (2006).

Interviews were conducted at locations selected by the participants. In three circumstances, this resulted in meeting in a school break room, and in two others the meetings took place at a conveniently-located coffee shop. Interviews were tape-recorded and transcribed, and notes were taken during the conversation as well. Immediately following the interviews, initial impression memoing was conducted to ensure import observations and key points were recorded for future analysis.

Key qualitative data sources and quality. Qualitative data collected from a focus group and paired interviews represents the second and third key data sources. During the focus group, open-ended questions that center on the experience of becoming a teacher while co-teaching were posed. During interviews, a semi-structured approach was used with planned questions focusing on the experiences of co-teaching that impact self-efficacy development. To ensure the reliability of all qualitative data, I employed a measure to ensure inter-rater reliability that involves a second coder who reviewed a segment of the transcribed data and the list of researcher-generated codes, providing his insight regarding the appropriate coding of the data. Miles, Huberman, and Saldana call

this technique "intercoder agreement" (2014, p. 84) and suggest qualitatively coded data be considered reliable if at least 85% intercoder agreement is achieved. Since this level of intercoder reliability is not always initially achieved, this process sometimes becomes an iterative one, taking place in several cycles until a satisfactory level of reliability is reached. In my study, this was true as well. To facilitate the coding reliability process, I provided a second coder my related code book (see Appendix F) and a selection of data to use to establish reliability. I purposefully selected a portion of a transcript that amounted to approximately 10% of the total data gathered in this study. During this process, agreement occurred 91% of the time, as calculated by the formula suggested by Miles and Huberman (1994) where reliability is equal to the number of coding agreements divided by the number of coding disagreements plus the total number of agreements. During this process, initial agreement was calculated at 73%, which resulted in discussion to understand areas of disagreement, and ultimately most coded segments resulted in agreement. Through the discussion process, we realized that disagreement primarily occurred when coded phenomena were quite similar and this ultimately resulted in codes being combined because they were redundant of each other, For example, original codes of "mentor influence on the mentee" and "mentor modeling" were ultimately combined to one category of "modeling."

Qualitative methods theoretical grounding. The use of both focus group and paired interview data collection methods reflect assumptions grounded in social cognitivism and the related self-efficacy theory, as well as social constructivism, which in this study are unified under the umbrella of pragmatism. Agency and self-efficacy, while theorized to be both descriptive and predictive (Bandura, 1997, 2006), are impacted by

environmental influences including social interactions (Bandura, 1986, 1997, 2001). Qualitative methods conducted in a social environment that generate understanding are aligned with this aspect of the underlying theory of the aforementioned experience. Social constructivism deals with this shared meaning generation more explicitly than does the literature associated with the cognitivist tradition, and since this study is exploratory, utilizing methods that cross the theoretical divide are necessary to gain the fullest understanding of both the calculated change and the overall experiences that impacted it.

As pragmatist scholars note, we might consider our paradigmatic adherences as a continuum rather than disparate points in space (Tashakorri & Teddlie, 1998; Johnson et al., 2007). Using these methods to explore this experience reflects a central point on that continuum, recognizing that where the methods most associated with self-efficacy theory end, those associated with social constructivism begin and also recognizing there is nothing about social cognitive theory's central premise that discounts the use of these methods. Leading self-efficacy scholars seemingly agree. In a 2004 interview, A. Woolfolk Hoy stated "I believe qualitative methods are appropriate for an exploration of factors that mediate efficacy development and cultural influences on the construction of self-efficacy beliefs" (Shaughnessy, 2004, p. 155). Speaking specifically to the study of pre-service teachers, Burke Spero and Woolfolk Hoy noted that qualitative methods are particularly appropriate because "these methods allow the sources of efficacy to emerge from the data" (2003, p. 8).

In choosing to mix methods, it is important to address the very real issue that social constructivists are alleged to disbelieve that truth or meaning can be quantified and

made generalizable (Creswell, 2003), and this idea may, at face value, seem in conflict with the use of an instrument that proposes to quantize a psychological construct. However, it is apparent that the quantitative instrument I will use in this study actually represents the quantification of innately qualitatively data discussed by Tashakorri and Teddlie (1998), and Bandura is clear that while predictive of individual behavior, this score is not inherently generalizable due to the influences that help construct it. In short, the paradigmatic divide is not so deep as one might initially believe in this particular study. For the purposes of this study, it is also clear that the self-efficacy instrument being used represents the quantitization of qualitative information. In this study, it is desirable to re-qualitize this innately quality-related data in addition to documenting the construct through the traditions associated with its measurement, which will ensure in-depth and contextualized understanding is gained.

Pragmatism, with its emphasis on intersubjectivity (Morgan, 2007, 2014) or dialecticism (Tashakorri & Teddlie, 2010), allows these approaches to be unified in a situation where taking a purist approach might cause important understandings to be overlooked. Furthermore, while the use of this instrument intends to capture possible patterns, it does not seek to generalize, further positioning it within the pragmatist tradition (Cherryholmes, 1992; Morgan, 2007). Bandura (1997) notes that there is neither a general measure of self-efficacy nor is there a one-size-fits-all environment in which self-efficacy will develop due to the intersection of individual cognitive processes and behaviors. However, this study assumes that patterns may be detected and that transferability might be possible to future research sites, assumptions which are

consistent with the purest of constructivist traditions (Lincoln & Guba, 1985) as well as with the contemporary pragmatist tradition (Morgan, 2007, 2014).

Data Analysis

To analyze the collected data, a framework for mixed data analysis presented by J. Greene was followed with an emphasis on "interactive mixed methods data analysis" (2007, p. 144). Greene describes this process as involving five steps that begin with data cleaning, in which a researcher reviews data for validity and overall credibility. In this study, this meant ensuring the quantitative instrument was properly administered and also ensuring that the qualitative interviews were conducted in such a way that leading questions or other external influences did not create forced participant responses. This step also included an evaluation of reliability and validity studies for the quantitative instrument, the calculation of data reliability for this population, and also ensuring coding reliability for the qualitative data collected. Additionally, participant responses were reviewed in this step in an attempt to remove invalid data from the response pool. This resulted in two completed instruments being discarded because the participants spent less than 60 seconds replying to 24 items, which indicates a lack of validity.

Next followed data reduction, which involves the compression of raw data into meaningful units, including statistical information and / or descriptive themes (Greene, 2007). Within this step, it was necessary for me to analyze each data type independently before the data could be understood relationally, so two separate independent steps were conducted during the phases of data reduction and transformation. First, quantitative data were analyzed to determine the mean change scores of the sample of student teachers using the SPSS 22 software package. To determine statistical significance, a paired t-test

was used. While the sample was derived from two universities, this study's focus was on the experience of co-teaching, regardless of where one was enrolled, therefore the school effect is not considered important to this study. However, to ensure that the data are not misinterpreted or complicated by a confounding variable such as school effect, two independent samples t-tests were conducted to compare the participants' pre-test scores and rule out the possibility of a fundamental pre-existing difference between participants based on the school they attend. One t-test compared all participants ($N = 27$, $M = -.68$, $SD = .82$) based on the school variable and found no statistically significant difference between the participants; $t(25) = -1.78$, $p = .09$. The second t-test compared all elementary education majors based on the school variable, and it also found no statistically significant difference between the participants from the private university ($N= 7$, $M = 6.12$ $SD = .71$) and those from the public university ($N = 10$, $M = 6.7$, and $SD = 1.07$); $t(15) = 1.42$, $p = .18$. Therefore, I can conclude that it is appropriate to consider the participants one unified sample, regardless of which school they attended.

I used the alpha level of 0.05 to evaluate statistical significance. Then, because significance does not always indicate practical relevance (Johnson & Christensen, 2012), the effect size reported as Cohen's *d* (Cohen, 1988; Howell, 2011) was calculated, using a calculator freely available (see http://www.psychometrica.de/effect_size.html), and following the formula presented by Dunlap et al. (1996), whose formula is shown to minimize the issue of overestimation found in other formulas sometimes used with dependent designs. Because this data also was used to select participants for the qualitative wave of data collection, individual change scores were analyzed, and those

showing the highest and lowest levels of change were identified as potential participants for individual interviews.

Second, qualitative data derived from focus group interviews and from individual interviews were analyzed using a combination of deductive and inductive coding schemes. Inductive coding is the process of allowing codes to "emerge progressively" during data collection and analysis, while deductive coding is when one begins data collection and analysis with a "start list" of codes, often drawing these initial codes from literature or previous research experience (Miles, Huberman & Saldana, 2014, p.81). Because self-efficacy scholars have identified several domains of teaching relevant to self-efficacy growth (see Bandura, 2006; Tschannen-Moran & Woolfolk Hoy, 2001), initial coding took these into account, while remaining open to codes and eventually to themes that were emergent. Ultimately, this initial coding resulted in 51 separate codes that were collapsed into themes related to the experience of co-teaching and later, to the experience of co-teaching in relation to various levels of self-efficacy development. Nvivo 10 was used to manage this data. Because data were analyzed separately in regard to each research question, the findings from the first research question and from self-efficacy literature were used as a priori codes to help analyze the data collected in regard to the third research question (what experiences impact various levels), though even this method resulted in an additional inductively coded theme, "reflectiveness" being generated, as this code's pattern in the data were undeniable.

The third stage of data transformation intends to "enable higher-order analysis" (Greene, 2007, p. 145) and often involves data consolidation as well as the merging of data types as trends are detected, which is an essential component of the fourth phase,

data correlation and comparison. In my process, I found that higher order analysis and data consolidation happened simultaneously, and that the constant comparison of quantitative findings and qualitative data happened throughout the process, rather than in distinct stages. For example, the results of quantitative findings were used to code qualitative data and the qualitative data were used to further interpret the quantitative findings. Therefore, I will refer to this step in the process as stage three-four. In stage three-four, I consolidated qualitative data by employing a second layer of coding that transformed my original list of 51 into thematic categories. This allowed me to combine redundant coding categories, of which there were many, and to arrange categories that act in a supporting manner, ultimately arriving at a tree-like structure that represents the themes that define the overall experience for participants in this study (See Appendix G).

During this stage, I also found it helpful to qualitize the quantitative data, which resulted in a written summary of quantitative findings being introduced into the data pool and also allowed me to use the survey findings to better understand interview and focus group code data contributions. For example, focus group contributions made by a participant whose self-efficacy scores increased during the time she was student teaching were now coded both by topic and also by a new category called increased self-efficacy. Likewise, qualitative findings were quantitized within a table that cross referenced the number of times a given category was coded in reference to other codes (See Appendix H). For example, I was able to create a table that allowed me to see how many times a transcript coded as “reduced self-efficacy” referred to “modeling” in comparison to other transcripts.

Visual displays are an important part of these combined phases, as well, and I used visuals, particularly in the form of tables to help me analyze and understand the data. For example, the numeric table was used to gain insights as described above, and later a word table (Yin, 2014) was created that allows for side-by-side case comparisons to be made based upon inductively coded data (See Appendix I).

Finally, analysis for conclusions and inferences is the final phase, and in this step conclusions and inferences were essentially fact-checked, and held up against the compiled data to ensure they are appropriately supported (Greene, 2007). In my study, this meant that the inferences I arrived at were checked against the independent sets of quantitative and qualitative data that exists and cases were written. To do this, I compiled a list of statements – hypotheses, really – that my analysis led me to believe answered my research questions. Then, I reviewed the coded data sets and quantitative findings to ensure consistency between the statements I wrote and the compiled data. Doing so resulted in a more accurate description of the cases, because some instances of disagreement were noted which warranted further examination, explanation, and conclusion revision.

CHAPTER FOUR: FINDINGS

This study sought to understand the experience of co-teaching as a student teacher. Specifically, three research questions were addressed:

1. How do student teachers engaged in a co-teaching student teaching arrangement experience the classroom role of teacher within this setting?
2. How much does co-teaching as a student teacher impact a pre-service student teacher's sense of self-efficacy related to teaching? and
3. What are the experiences of co-teaching as a student teacher that inhibit, enhance, or maintain one's sense of self-efficacy related to teaching?

To answer these questions, I used a mix of research methods that allowed me to generate rich qualitative data that addressed students' experiences as well as quantitative data that measures the amount of self-efficacy change experienced by student teachers during the student teaching experience. Focus groups, individual interviews, and survey instruments were the primary data collection methods employed. Each data type was analyzed using the appropriate methods, and then data were triangulated and combined in instances where multiple data types provided deeper understanding. In instances where multiple data types were not necessary to gain increased understanding, triangulation was still used as a way to ensure the validity of inferences. For qualitative data sources,

thematic coding was used with the help of Nvivo 10 to manage data, and for quantitative data sources, SPSS Statistics 22 was used to aid in the analysis.

Research Question 1: The Experience of Being a New Teacher as a Co-Teacher

Data related to Research Question 1 were analyzed using both inductive and deductive coding since self-efficacy scholars have identified domains of teaching relevant to self-efficacy growth, including, for example, delivering instruction and planning instruction (Bandura, 2006; Tschannen-Moran & Woolfolk Hoy, 2001). This coding technique resulted in a total of 51 codes, which were collapsed to form the themes identified in relation to this question (See Appendix G). A detailed coding example of the individual codes that make up the theme of 'Employing Models of Co-teaching' can be viewed in Appendix G, figure 2. These findings later were triangulated with numeric findings related to self-efficacy growth in order to seek out consistency of findings as well as with qualitative findings related to Research Question 3, resulting in intersubjective understanding through an abductive logical process, as the findings did indeed relate to and affirm one another.

The process of gaining one's initial teaching experience as a co-teacher can be described as one of transition that is sometimes fraught with uneasy tension, as the difference between *doing* teaching and *being* a teacher surfaced. Contributing to this tension is the reality that student teachers feel they experience the most professional growth when they are receiving feedback, yet they feel most capable and like a teacher when they are left alone in the classroom and away from a mentor's watchful eye. Despite the difficulty with self-definition, student teachers generally describe a change that takes place during the student teaching experience that results in increased feelings

of preparedness, often as a result of feedback and experience offering them the opportunity to implement their own original ideas. In situations where student teachers feel they achieved synergy and true collaboration with their mentor teachers, student teachers report the most positive teaching experiences and ultimately come to identify as teachers. Negative teaching experiences are characterized by issues of control and a lack of collaborative synergy. Additionally, in situations where feedback was lacking, it seems that frustration and uncertainty about one's capabilities remained an issue, which also contributed to negative perceptions of the experience. Supporting the inference I have drawn – that overall, positive transition toward the role of teacher occurred during the co-teaching student teaching experience - is quantitative data that showed the co-teaching experience resulted in a statistically significant positive change in self-efficacy related to teaching.

While self-efficacy alone may not directly indicate one's development of professional identity, Bussey and Bandura (1999) explain that development results from the same triadic reciprocal pattern of causation introduced in social cognitive theory (Bandura, 1986) and to which self-efficacy beliefs constitute an important component. Embodiment of a given role and its associated actions are influenced, then, through personal, behavioral, and environmental influences with the primary modes of role-based behaviors being conveyed through others modeling norms, by engaging in mastery experiences, by gaining feedback from others, and by direct instruction (Bussey and Bandura, 1999). Bandura (1999) clarifies that from a sociocognitive perspective, one does not develop multiple identities; rather one's identity expands due to an increased sense of agency, which is a direct result of self-efficacy in relation to the given task or

role. In the case of student teachers, this development is not a case of one developing a new person and way of being; it is a case of increasing agency in a particular domain of functioning by gaining the experiences necessary to bolster self-efficacy. This definition of identity and the influence of personal agency is consistent with what is described in the teacher education literature as well, with Alsup describing identity discourse associated with a "view of teacher identity that is holistic – inclusive of the intellectual, the corporeal, and the affective aspects of human selfhood" (2006, p. 6).

Transitioning Self

Student teaching is a time of personal transition, and for student teachers who co-teach during the experience this seems to be true as well. For student co-teachers, this transition was expressed as a tension between doing the activities of teaching, and being a teacher. Data analysis showed that action verbs, such as planning, engaging with the community, and delivering instruction were the defining experiences of student teaching and serve as the impetus that drives the transition experienced by student co-teachers. These defining experiences were generally expressed in terms of action or "doing," and only in rare circumstances were the actions considered part of who the student teacher has become.

Doing / Being

Student co-teachers in this study differentiate between completing the actions associated with teaching – doing teaching – and being a teacher. Despite gaining 16 weeks of full-time experience in a classroom, the vast majority of focus group participants who were convened to discuss the experience of co-teaching (5/6) do not consider themselves teachers even though they acknowledge that the activities they have

completed are pushing them ever closer to being a teacher. One participant expressed that "being" a teacher is considered a part of one's identity that is developed through experience and by innate qualities that differentiate those that should teach from those who should not. The same participant described this as a sort of "calling" or "passion" that she is not sure she possesses because she did not feel incomplete as a person without a teaching job in her immediate future. Differentiating between "doing" a job and embracing a part of one's identity, the same participant stated:

> Even now (after 13 weeks of student teaching), I just say, "I'm student teaching." I don't say, "I'm a student teacher." It's more of like - that is what I'm doing, rather than that is who I am as a person…(April 11, 2015)

The student-teaching co-teaching experience, while considered transformative and largely successful by other student teachers who did express a deeper "calling" toward teaching, also resulted in a differentiation between what student teachers currently are engaged in doing versus them actually being a teacher. For instance, despite moments where participants describe feeling like "good" teachers, most participants in this research study continue to define themselves as people who are "student teaching" or who "just finished student teaching" rather than as "teachers" or even "student teachers." All student teachers who described themselves this way have, however, passed state licensing exams and are eligible to receive their licensure after commencement, making "teacher" an appropriate title, just as a person who passes the state bar exam is a "lawyer" and one who passes the state board of nursing exams is a "nurse." This inability to define one's self as a teacher may reflect that the word "teacher" has largely been connected to an employment role versus a professional identity worthy of respect, and one participant

joked that he was afraid to call himself a teacher, because then his friends would think he had a job and thus had money.

Demonstrating development of professional identity during student co-teaching, one participant explained that he felt like he was almost ready to define himself as a teacher, but that there was still some hesitation. When asked how he plans to respond the next time someone asks him "what do you do?" he said, "I would say student teaching. I think that it's so weird because I'm tempted to say teaching sometimes. It's like - I would almost be about to say teacher (but I couldn't)" (April 12, 2015).

Another participant also felt that she would best define her role as one of activity – of doing student teaching – but she later acknowledged that during certain experiences of student teaching she began to notice a transition in herself – a becoming - and ultimately found herself to be a "good teacher" when she realized her capabilities had grown to a point where she was leading many activities without even realizing it due to the scaffolded introduction to teaching that co-teaching allows student teachers. This conclusion was aided by feedback from the mentor teacher that allowed the student teacher to attribute instructional and lesson planning successes to her own efforts.

One notable exception to this transitional trend is a participant who described a student teaching experience unlike any of the others. This participant says she tells others that she "is teaching" and always has done so. This participant also had a student teaching experience characterized by synergy, which allowed her to enter the classroom and act as an equal throughout the entire experience. Unlike most co-teachers who felt they took turns acting as the lead teacher and supporting teacher at different points throughout the student teaching experience, this participant felt that she and her mentor

were a team and "fed off each other" from the very beginning, playing equal parts in all lessons and the many activities related to teaching. Her experience also differed from other student teachers in that peer group-based social comparison was lacking from her teaching experience. This peer-group based social comparison proved to be a detrimental force on student teachers' developing senses of teacher identity, though when made conscious of the corrosive influence these comparisons have, one student teacher was able to overcome the issue. While this student teacher's experience was unique to focus group participants, two individuals who were also part of this study and who participated in other ways reported similar experiences with synergistic teaching experiences and they also seemed to readily accept the role of teacher and all its related responsibilities.

Comparing Self to Other Student Teachers

Self-efficacy theory positions social comparison as a useful tool for self-assessment and for the development of personal efficacy beliefs, because when one has little personal experience in a given domain, knowledge of a similar person performing tasks should, theoretically, positively impact one's sense of self-efficacy (Bandura, 1999). In this study, though, social comparison proved to be a detrimental force. Student teachers often compared themselves to their peers, evaluating whether they were as actively involved as they perceived their peers to be and judging whether they were as effective as they believed their peers to be. These comparisons served to be detrimental to all who reported them, fostering feelings of uncertainty and dissatisfaction. These peer group-based social comparisons also were directly connected to transitional difficulties and an inability to identify significant movement toward being a teacher and instead cling to 'doing' teacher activities. One participant introduced this idea by saying

> I feel like everybody else in my class is probably super-ready to be a teacher, super-ready to have a full time teaching job. They're all like, "I feel so complete now that I'm in the classroom, now that I'm using all my knowledge." I'm like, "I'm going to need some time. I'm not going to just slide into that." (April 11, 2015)

Another participant provided an example of how this social comparison can impact the already stressful situation of student teaching, particularly if multiple student teachers are placed in the same school setting. She states that mentor teachers compare student teachers and that she and her peer are aware that they are being compared. This knowledge causes them to feel pressure to ensure their actions were always in sync with each other, so there were fewer contrasting points the mentor teachers could use to define each student teacher. She shared a story about creating notes to send home to parents and the added layer of stress caused by this peer group comparison:

> It's also just a lot of things with being compared - like, how I'm doing versus how she's doing. That's really hard, and I feel like that's an added thing that her [sic] and I have to text (message each other) and be like, "Are you bringing your positive notes in tomorrow because mine aren't ready yet." Then she'll say, "Okay, I'll wait a day," because if she brings hers in and I wasn't going to bring mine 'til the next day, my teacher will say, "Well, she brought hers, where are yours?" I hate that. We have to be very conscious of texting and making sure that we're both going to do things at the same exact time… If we're going to bring them on the same day, then that's fine, but I'm not going to bring mine early because that's going to make her look bad. (April 12, 2015)

Some student teachers did not feel this pressure, including the student teacher who described a synergistic teaching experience with her mentor. She also had another student teacher on her grade level team, but she shared that she never felt compared to the other student teacher, and that they instead used each other as resources. Likewise, an additional student teacher who participated in this study described having a very successful student teaching experience and suggested that a deliberate lack of peer group-based social comparison is the reason she was successful, as she had seen its detrimental impact on her peers, so she withdrew from situations where comparisons might be made:

> I just feel the best thing that's ever happened to me was that I really don't talk to anyone. That sounds so bad but… I don't really talk to people about all the great things their schools are doing, all the great things their kids are doing, all the wonderful things they are doing, because there are a lot of things that my kids can't do.… I just feel like I have a really unique experience in that sense - I felt I wasn't ever comparing myself to anyone else's experience, and I think that that allowed me to truly just look at myself in my own experience. It would be easy to compare, so I haven't talked to anybody. (April 20, 2015)

This student teacher seemed passionate about the importance of separating herself from her peer group and reflecting on her progress within the context she was placed.

Employing Models of Co-Teaching

All student teachers in this study were trained in the SCSU models of student teaching (Bacharach, Washut Heck & Dahlberg, 2010). Student teachers largely characterize the early weeks of student teaching as primarily an observational time where they were most likely to engage in activities consistent with the one-teach, one-observe

co-teaching model. This most often resulted in them acting as the observer while their mentor teacher modeled teaching strategies and behaviors. Some student teachers did describe using a team-teaching model that results in equal engagement and instructional authority from both partners at all times, including one focus group participant whose student teaching was characterized by synergistic teaching experiences and two study participants who were involved in individual interviews.

For the majority of student teachers who used the one-teach, one-observe model, as the weeks progressed, student teachers found themselves reversing roles with their teachers, with the mentor acting as the observer. At some point within the student teaching experience, generally during the second half of the 16-week experience, all student teachers engaged in solo teaching time where they took over primary responsibility for all aspects of teaching. One student teacher described the employment of teaching models she and her mentor chose to use in this way:

> (at the) beginning of the semester ….it was more observational. Then, after that it was more of (the mentor saying) "I'm going to sit here and I'm going to observe you a little bit." Now, it's more, "Here, you teach these. I'll be in and out," because he wants me to have the time in front of the class by myself with the classroom management and all that stuff. It's been a lot of transitions…(April 12, 2015)

Other student teachers described similar experiences, for instance:

> We went from one-teach / one-observe, where I was the observer, to now where we try different strategies like parallel teach. Then we never really team taught,

> we kind of just jumped back to one teach observe, where now I'm the teacher and she's observing. It's like switching roles. (April 12, 2015)

This experience of acting as a lead teacher was described as both incredibly rewarding and also one of tension. While student teachers reported feeling the most agentic while they were acting as the lead teacher, particularly on days when their mentor teacher was out of the classroom entirely due to sick leave or other responsibilities, feelings of uncertainty and general discomfort with the solo experience were simultaneously described and attributed to a lack of performance feedback during these times. However, in circumstances where student teachers specifically requested feedback and mentors were able to or willing to provide it, student teachers described their experiences as being rewarding and characterized by growth. One student teacher described her experience of acting as the lead during the second part of student teaching like this:

> She threw me in and I thought that it went really well. Then it (my confidence related to my teaching ability) went and plateaued again because she didn't give too much feedback, but then I kept asking for it and we started, like, a binder full of things that I would write in it and make sure to put it right on her desk and I don't know … She started to write in it too… It worked out pretty well. (April 12, 2015)

Another described a similar experience:

> Then I had another plateau (in my feelings of confidence related to my teaching ability), because (while I am acting as the lead teacher) there's no input from her. It's just like "You're running the show. I'll leave the classroom, it's fine," but I

> want to know! How do you think that lesson went? Do you think it was good for the students? (April 12, 2015)

One other participant reported a similar experience, feeling that her development had plateaued due to a lack of feedback and support. She also reported asking for feedback but being denied the feedback she felt was pivotal to her development as a teacher. Sharing the experience, the student teacher said the following:

> I've suggested certain things to my teacher and she says she'd rather just write things down when she notices them and then put a Post-It note on my desk… and have I ever gotten a Post-It note on my desk? I have not. I even suggested we keep a notebook and then she can jot things down in a notebook. She was like, "That's a lot of work for me." (April 12, 2015)

This ultimately resulted in negative feelings about the overall experience and, while the participant reports feeling capable as a teacher, she also is uncertain if she will pursue a teaching career because she found it to be an unsupportive work environment. This same student teacher also highlighted the importance she placed upon the mentor teacher acting as a true observer during the employment of the one-teach/ one-observe model when the student teacher acts as the lead, saying:

> So, we did a few one teach, one observe, but that was in the very beginning that I observed. What I don't really like is that I feel like co-teaching is supposed to be equal… In the beginning when she was just saying I would observe, I needed to be sitting and watching her, but if it's one teach, one observe, the other way, like she's doing other stuff. It's like I don't feel like that was very fair. I had to

> observe how she was doing it so I could do it, but she never had to sit and watch me and give me input. (April 12, 2015)

Excluding participants who used team-teaching and described a level of synergistic collaboration unique to their student teaching arrangements, student teachers interviewed for this study expressed widespread uncertainty about whether or not they were co-teaching correctly, because they felt they failed to use the many models of student teaching they had previously learned about during their undergraduate training, and instead relied most often on one-teach /one-observe without ever achieving the team teaching approach so often idealized. Feelings of frustration were also expressed in regard to feedback received while co-teaching, as previously discussed, and the role of feedback is shown to be increasingly important when student teachers reflect on their experiences instructing students.

Instructing Students

Despite this uncertainly about their use of co-teaching approaches, delivering instruction is an area where student teachers feel they have gained in experience and expertise. Even to those reporting negative experiences due to lacking feedback and feelings of being unneeded, the time in front of a classroom, particularly 'solo time,' was perceived to be beneficial and helpful as student teachers developed their professional senses of self. Student teachers' instructional experiences while co-teaching can be divided into two phases: before solo-teaching and after solo-teaching, with student teachers describing a personal transition that occurred when they gained their first solo teaching experience.

For the majority of participants, early experiences before solo-teaching were characterized by frequent interruptions as pairs tried to co-teach, and mentors interrupted lessons to make modifications or input additional content. In some occasions, where mentors and student teachers had built a positive interpersonal relationship, such interruptions were viewed as helpful, appreciated and as a natural extension of a team-teaching arrangement. In circumstances where the student teacher and mentor did not have a synergistic relationship, the end result was frustration, and student teachers perceived these comments to have a negative impact on their abilities as a teacher and in their ability to feel confident about their teaching. To understand how student teachers felt this impacted their confidence about their abilities, I asked focus group participants to sketch a growth line showing their levels of confidence and development at various points during student teaching (see Appendix J); one participant described an extended plateau during a time she expected to grow professionally in this way:

> (When I'm interrupted while instructing students) I'm like, "Just let me finish the lesson and then give me feedback. Don't stop me and totally cut me down in front of the kids when I'm supposed to be the teacher and say, "Well, you didn't teach them this yet?" I'm like, "That's next. That's the next step," and that's just because we teach differently. So that's why I'm at a plateau (in my development and confidence) right now where there's either no input or she'll jump in stop me and be like, "Oh, well it's 10. You have to do stations now," and I'm like, "Well I was going to maybe start at 10:05 because this lesson needs to carry over a little bit longer. That's where I'm at. I went up (became more confident after

> beginning to take on a more active teaching role), and now I'm just back to a plateau. (April 12, 2015)

For all student teachers in this study, a "solo" teaching period was scheduled into their co-teaching schedule as this is an expectation at both universities students attended. During this time, they served as the lead teacher and one-teach/one-observe scenarios where the mentor teacher served in the observer's role were the norm, though not all mentor teachers fully implemented the role of observer. It was this period of time that participants characterized as an impetus for development and causative to their transition to the role of a teacher. Gaining time as the primary deliverer of instruction was cited as a confidence booster, as a chance to be creative, and as an opportunity to experiment with ideas that had previously not been allowed:

> When I came back from spring break, was when I was solo teaching. The week before I was preparing for and doing a lot more of the teaching. When I came back she was like, "You have all spring break to prepare, then you come back and you'll be teaching." I was, "Okay that's fine …" Spring break, I guess, when I was solo teaching, is when I felt the most like I was really a teacher and able to handle everything and do a good job. (April 12, 2015).

On occasions where the student teacher was truly independent in the classroom because the mentor teacher was out for personal reasons, strong growth was realized and was attributed to increased feelings of control. These feelings of control and confidence carried over and resulted in a more positive experience throughout the rest of the student teaching experience:

> I was solo teaching four weeks up to spring break, so that really helped me gain confidence as a teacher, though I never felt like I was the teacher of my class yet, except for when I had a sub. Our other second grade teacher has been out for health issues, so my (mentor) teacher would sometimes go over there. Then they'll get a sub in my classroom just for the day or whatever. Just having her gone from the classroom … It's really just mine. I can run it on a time schedule that I want to run it on. I can pull the students I think I need to pull. There's not someone saying, "I think you should do this," even though I have my own plan and my own papers on my desk, you know? It was nice having a sub. It's like, "I teach all the lessons. You can hop in if you want to," It's really nice being that person. That's when I really felt like the teacher. Because the kids weren't asking me where is the new teacher? They just knew it was me. It was those moments, I felt like the teacher. (April 12, 2015)

Another student teacher shared a similar experience and explained that the opportunity to be independent in the classroom also increased her feelings of control and confidence when her mentor teacher returned, because for the first time she was more knowledgeable about students' prior learning and the appropriate instruction moving forward:

> I have the Friday before spring break my teacher left for vacation. The Friday, the first week back, I was entirely by myself. I had a sub, but she was … She had just graduated from Purdue, so she was a year older than me. … She was like, "Just let me know if I can help you grade anything." Being by myself like that really helps.

> When I came back I was the one who really knew where everything left off. I was the one to pick it up. (April 12, 2015)

However, in the case of a student teacher who was asked to begin solo teaching early into the experience – on day one for one class she was teaching, and approximately two weeks into the student teaching experience for all other classes – the experience of delivering instruction was particularly challenging. While this student teacher recognized moments of success throughout the experience, she felt her development was stunted by a lack of true mentoring. She described a lack of modeling and a lack of regular performance feedback as being particularly detrimental to her growth, saying "I was so wanting to be encouraged, but also have quality teaching displayed for me, and then me do it and talk about it, but that didn't happen…" (May 6, 2015). This student teacher's experience highlights the importance of expectations, as well as the influence of a mentor on student teachers' development.

Similar to this student teacher's experiences are examples shared by several other study participants who indicated that while solo teaching was very rewarding, the limited amount of feedback garnered during this time created feelings of uncertainty and caused moments of self-doubt. However, this lessened amount of feedback seems to have been overcome by successful first-hand teaching experiences and also by student feedback such as participation, enthusiasm, academic performance, and direct comments on the quality of instruction. All participants shared that their feelings of confidence regarding their teaching abilities ultimately improved, and mixed methods data analysis that combined the results of the self-efficacy survey instrument with the focus group data

supports this increased growth in self-efficacy, which presumably impacts agency and thus the development of professional identity.

Participating in the Larger School Community

Student teachers reported that community/peer group involvement had a strong impact on their transition into the role of teacher. Particularly powerful was inclusion into the circle of professionals and experiences where parents sought out student teacher feedback, treating them as a professional who holds important knowledge about their children's abilities and behavior. When specifically asked what experiences allow the student teachers to identify as a teacher, responses included the following:

> … the parent - the mom - would come in and be like, "Thanks for the note. My student talks about you all the time." Things like that made me feel I was having an impact, which made me feel more like a teacher. (April 12, 2015)

> (During parent-teacher conferences) A couple of parents were like, "What do you think?" I was like, "Wow." That made me feel good, because then I could give my input. They wanted my input. (April 12, 2015)

Other student teachers focused on their participation with professionals outside of their classroom. Instances where school administrators and grade level teams were welcoming toward student teachers were considered powerful forces on student teacher's developing senses of self. For example, student teachers reported the following:

> …the principal asked if I wanted to help out with just a parent night or something. I was, "That means she really sees me as another educator in here." I thought that was cool .... (April 12, 2015)

> And
>
> During after school meetings - RTI meeting, staff meetings - I got to know other teachers in the building and that was cool. I feel like I genuinely have relationships with some of these teachers. Like, today, one of the first grade teachers brought me bouquet of flowers. It was just so ... Things like that where I feel I really got to know other teachers and I really felt I was a part of this school (make me feel like I'm a teacher). I wasn't just an everyday visitor or everyday guest. (April 24, 2015)

Contrastingly, one participant reported being denied this level of involvement and attributed the lack of opportunity to interact with the larger community as a major factor in her struggle to transition smoothly into the role of teacher. Particularly poignant was the story of her feeling as if she were excluded from parent-teacher conferences when she was instead asked to return to the classroom to complete lesson planning for the upcoming week while her mentor teacher handled conferences. She described the experience this way:

> Well, the first parent-teacher conference that I participated in, I like, I couldn't really tell if my teacher wanted me to go and do that. Then the second night, my teacher and the other cooperating teacher were like, "Oh, will you two do all the planning for next week? We didn't participate in parent-teacher conferences the second night, and her [sic]and I just planned during the conferences. I didn't meet half the students' parents and that made me feel less like a teacher because I was like, "Oh yeah, that's fine I'll plan," and my teacher was like, "Oh, good." I felt that she didn't want me to be there for the parent-teacher conferences, but I felt

> like I'm in the classroom just as much, why am I not meeting their parents, and why aren't their parents getting the chance to meet someone who's with their children every day? That kind of really hurt me; that we planned. It felt like it was us saving them time that we would do the planning while they did conferences instead of all of us doing conferences and then all of us having to do planning at a separate time. Going back to it, that's another reason kind of didn't feel like I'm really a teacher because I didn't go to the second day of parent-teacher conferences, and I didn't meet half their parents (April 12, 2015).

Planning instruction, while a negative experience in the situation where a student teacher was asked to plan at the expense of gaining other valuable experiences related to teaching, was largely considered an important activity that contributed to the development of becoming a teacher.

Planning Instruction

When it came to instructional planning – creating lesson and unit plans and selecting curriculum – student teachers describe a pattern of transition consistent with the overall gradual role reversal they experienced in the choice of co-teaching models used. In the early weeks of student teaching, they describe using co-planning techniques that often involved the mentor teachers serving as the lead and the student teachers serving as a collaborator and secondary contributor. Then, planning responsibility was gradually equalized and on some days even fully assumed by the student teachers. Oftentimes, these circumstances were the result of the mentor teacher laying out a framework for a lesson or unit, perhaps a specific topic and curricular materials that should be addressed,

but allowing the student teacher to plan the instructional sequences that would be used to deliver the material. One student teacher described the process this way:

> At the beginning we would generally just go through our textbooks and be like, "This is what we need to focus on." Oftentimes we wouldn't use exactly what the textbook said, and we would come out with our own ideas. That's when I was able to shoot in my ideas. She'd say "this is our topic," but I was like, "I think this activity would work," and that's how it would go. We did that for a couple weeks and then I asked if I could lead some days, and I'd be like, "Okay, this is what I came up with, add on to it," and that's what we would do. (April 12, 2015)

Sometimes complicating this experience were Professional Learning Community requirements that necessitated grade-level planning sessions. This was further complicated in situations where grade level planning teams included multiple student teachers. As one participant stated,

> There's another student teacher in 4th grade. It's just interesting, because it's not just me planning with my teacher. It's like me planning with my teacher, her planning with her teacher and then the other teacher. That's five people co-planning every week. We meet every Wednesday after school, all five of us, and sit down. It was hard, not just for my teacher to give it up, but all three of them. Because, the one teacher doesn't have a student teacher, so she doesn't really have to give it up. But if she doesn't give it up, then the two of us who are student teaching don't get the chance to plan because she would plan (for the grade level team). It's been an interesting dynamic between the three teachers and then the two of us. (April 12, 2015)

This complication was described by other student teachers as well, who stated that planning can sometimes be challenging because "It's not just my teacher who has to let me do it, it's like the other two teachers (on the graded level planning team) also have to trust me to do it. I have to try to earn the trust of all three." (April 12, 2015)

An additional concern contributed by one participant is the perception that her contributions were disregarded due to a mentor teacher's adherence to a pre-defined schedule and curriculum. This participant wondered "Why am I even here?" and felt her development as a teacher decreased when "finally she was asking for my input, but never wanted to do anything that I brought to the table ever" (April 12, 2015). Ultimately, though, in the final four weeks of student teaching this was somewhat remedied when the student teacher gained increased planning involvement.

> … then finally she started bringing me into the class more and then she let me start doing my ideas and stuff. So it (my feelings of confidence related to my development and teaching) started to go up. And then when I took over the classroom I was doing everything the way that I wanted it to be and so it really went up. (April 12, 2015)

Despite the frustrations of PLCs and feelings of being disregarded, planning was largely viewed as a positive and transformative practice by student teachers, particularly because it provided an opportunity to have the logical processes and efficiencies of instructional planning modeled for them. Participants described the impact of instructional planning on their growth as a teacher like this,

> I think it got easier as I got into it then when we planned for the 2nd round of ISTEP. It was a lot easier because we already had done it once and I saw how the

> other teachers were doing it because they'd take a standard and say okay, "Here is our standard that we're going to focus on this day, now what work sheet or what do you want to have the kids do that goes along with our standard?" (April 12, 2015)

Like this,

> She is a very long term planner. I've always been a planner but not as in depth. Now I see the importance of that, the important of planning that far in advance because whenever it's Monday, I feel great because I know what we're going to do all the way until Friday. (April 24, 2015)

And like this,

> At first, it would definitely take me a long time because at first we would do all the planning and she would give me one subject and that's when I realized I was taking hours on one subject and I was like, "She got how many subjects in how many minutes?" That's when I was like, "Okay, I need to watch how she does this," again, just through observation and then I'd try it again. (April 12, 2015)

One participant even felt that planning was the most transformative experience of student teaching, saying

> I think the co-planning was when I decided that, I was like, "Man, I really think that I'm becoming a better teacher," because at the beginning of the co-planning, she was like, "All right, I think this is what we need to do," and then since that wasn't every single day and I could see a bigger jump from week to week, then I was able to ... by the end, I was like, "I just planned all of this," and you've

> sprouted some ideas. I think that's when I really realized that I was a teacher or a good teacher, is during the planning times. (April 12, 2015)

Managing the Classroom

The experiences gained managing a classroom seem to have a lesser and sometimes negative impact on student teacher's developing sense of identity. It seems that student teachers had little input into classroom management procedures as the classroom's culture and expectations had been established before they arrived to student teach. In several instances, student teachers disagreed with the way the classroom was managed and used the experience as a negative example – a tutorial in what not to do next year – rather than view the modeled behavior and expectations as something to incorporate into their own skill set. For example, classroom management systems that revolved around using participation points at the high school level and behavior-based paperclip systems at the elementary school level were described as being things that student teachers will avoid when they have their own classrooms. In another instance, classroom management was actually described as a detrimental experience and one that impacted the student teacher's ability to view herself as a competent teacher because she felt she was provided no guidance, support, or modeling in relation to classroom management. Describing the experience, the student teacher said,

> Even now, leaving, it was kind of just like I was hoping there wouldn't be any management issues. He didn't give a plan to the students. He didn't give a plan to me. It was kind of like, "If something terrible happens we'll deal with it when it comes." I knew I didn't have his support. I didn't know how to enforce or

represent that to the students on my own. I still don't know how to do that. (May 6, 2015)

This student teacher went on to describe classroom management issues that did occur and that were not consistently addressed by her mentor, which led her to conclude that the lack of support was because her mentor teacher actually had no system in place. Thus, it was her responsibility to implement one, but without guidance she did not feel capable.

In most circumstances, student teachers did indicate that they felt the presence of two teachers – themselves and the mentor teacher – allowed for better classroom management than might otherwise have occurred since they were better able to cover the room and respond to students' academic and emotional needs. In this regard, co-teaching was seen to provide training and experience that will help student teachers effectively utilize teacher's aides or instructional assistants within their own classroom management plans in their future classrooms, though it seems that a clear management plan, consistent implementation, and modeling is essential to student teachers' development.

Summary

The experience of being a new teacher as a co-teaching student teacher is primarily understood through the daily actions performed by these student teachers as they begin the transition from student to teacher. These activities, experiences and related perceptions impact student teachers' senses of self-efficacy related to teaching. An important component of the experience of being a teacher as a student co-teacher was to understand how this experience impacted self-efficacy related to teaching. Now that an understanding of the experience has been presented, this will be shared.

Research Question 2: Co-Teaching's Impact on Self-Efficacy Related to Teaching

Student teaching is long-thought to make a powerful impact on one's sense of self-efficacy related to teaching (Bumen, 2013; Stripling et al, 2008; Tschannen-Moran et al., 1998; Woolfolk Hoy, April, 2000), and this study sought to understand what impact co-teaching as a method of student teaching wrought on this construct. To explore this question, a survey instrument knows as the TSES (Tschannen-Moran & Woolfolk Hoy, 2001) was administered before student teaching began, between the months of November, 2014 and January, 2015, and at the end of student teaching between April and May, 2015.

The initial participants (n = 27) reported an initial mean self-efficacy score of 6.31, which best corresponds with a survey response of "some influence" to questions intended to elicit the level of confidence teachers have in their abilities to impact students. In the final responses, the mean score increased by statistically significant levels to 6.99, which best corresponds to a survey response of "quite a bit" regarding their level of confidence in their ability to impact students. Between pre and posttests, the variability in responses decreased, resulting in a smaller standard deviation (.7725 versus .9456), which indicates that participant responses became more similar to one another after the experience of co-teaching.

Other studies, presumably focused on student teachers participating in a more traditional method of student teaching, also found significant increases between these two points in time, with Sahin and Atay (2010) reporting that this time period produced a statistically significant positive effect, while measurements between student teaching and one's first year as a classroom teacher did not. Likewise, Woolfolk Hoy and Burke Spero

(2005) also report significant increases from the time student teachers begin student teaching to the end of the experience. Other studies using the same instrument do not measure change, but do report upon student teachers' mean self-efficacy at the end of student teaching experiences. Swan, Wolf and Cano (2011) found that overall teacher self-efficacy at the end of student teaching was 7.5, with a standard deviation of .68, which puts it within range of this study's findings.

To determine significance, a paired samples t-test was conducted and showed that mean survey scores at the end of co-teaching were significantly different than the ones at the beginning ($t(26)=-4.31$, $p = .01$, $\alpha= .05$). In this study, they had increased by .68, and showed a smaller standard deviation indicating greater stability in the groups' scores. Because statistical significance does not always indicate a practical effect, I calculated an effect size using Cohen's *D* using the formula appropriate for matched groups suggested by Dunlop, et al (1996), which indicated that the mean differences resulted in a medium-to-large effect size ($d = .78$). Finally, a third step to ensure a practical effect was employed through the review of mean response data and the corresponding adverbial phrase on the survey instrument itself. The change in scores, while less than a one survey item, resulted in the movement between participants having "some" influence to having "quite a bit" of influence. From a semantic perspective, this is significant as well, with "some" indicating a glass-half-empty approach to one's significance, and "quite a bit" indicating a more optimistic approach.

While the group did, overall, significantly increase self-efficacy related to teaching, not all participants changed in the same way. In fact, 12 (44%) participants experienced stable scores throughout the experience. 13 participants (48%) experienced

growth of at least one point. Just one participant experienced a decline in feelings of self-efficacy related to teaching, and this decline was fairly large, rounding to two full scaled points on the nine-point survey.

Because self-efficacy related to teaching is considered an important indicator of desirable teacher attributes, I sought to understand the individual experiences that resulted in the variation of change scores among participants. For this reason, participants were purposefully selected by their representation of the three categories of change scores: increased, decreased, and stable. Participants representing the most significant change scores, which turned out to be movement that rounded to two scaled points in either direction were invited to participate. The case profiles shared next represent one participant with decreased self-efficacy (-2), one participant with increased self-efficacy (+2), and a final participant representing stable self-efficacy scores.

Research Question 3: The Experiences of Co-Teaching That Impact Self-Efficacy Change and Stability

To address this topic, the unit of analysis in this study moved from the group's collective experience of the phenomenon to the individual experiences. To enable this understanding, individual cases are presented, organized by the thematic categories that became apparent during data analysis, and then the results of cross-case analysis are shared. Qualitative thematic data analysis including deductive and inductive coding was used and ultimately was combined with the quantitative data results, which were used as a sorting mechanism during the coding process. In addressing this question, inductive findings from Question 1 providing the deductive code 'social comparison,' and self-efficacy theory provided the deductive codes 'mastery experiences,' 'vicarious

experiences,' 'emotions,' and 'feedback," (Bandura, 1997). Inductively generated codes included 'reflectiveness,' 'co-teaching,' and 'expectations."

This data analysis was aided by Nvivo 10, which allowed me to effectively sort large amounts of data. By incorporating an attribute level of analysis to sort existing analytic coding, I was able to create a comparison of my data codes – both a numeric count of topics (see Appendix H) and an easily accessed data set grouped by specific attribute in the Nvivo program (see Appendix K). For example, by coding the attribute "decreased self-efficacy" and applying that attribute to the transcripts associated with participants whose self-efficacy scores decreased, I could then choose to look at the decreased self-efficacy attribute amidst the data coded for "expectations". I was able to look at this data in several ways. First, examining the frequency distribution of codes in various source categories proved helpful in alerting me to view topical differences between participants that might be important. After identifying areas that might prove significant thanks to the numeric count data my matrix contained, I was then able to view the raw data in each source category to further examine these differences and again create summarizing and analytic memos which allowed me to create the case descriptions presented below. After creating these descriptions, they were used to enable cross-case synthesis, which was aided by the creation of a word table (see Appendix I), which allowed me to "draw cross-case conclusions" (Yin, 2014, p. 165-166).

Case Profile 1: Increased Self-Efficacy

Unless otherwise noted, all excerpts and quotations presented in Case Profile #1 were derived from an interview that took place on April 24, 2015. This participant's initial self-efficacy related to teaching score was 5.66. This score initially placed her in

the bottom 15th percentile of participants. Her final score increased to 7.21, placing her squarely in the middle of the 60th percentile range of study participants. This participant not only increased her self-efficacy related to teaching, but she did so to an extent that she moved from being in one of the lowest groups of self-efficacy to being better than both the median and the mean scores, placing herself into the upper 1/3 of participants.

Co-teaching. For this student teacher, parallel teaching was the co-teaching strategy of choice throughout much of the experience, particularly at the beginning. Unlike some co-teachers interviewed for this study, this participant's comments about co-teaching seemed to frame it as a way to better meet student needs, rather than to meet her own developmental needs:

> I just feel from where I started with them, as I reflect, unlike where I was at the very beginning to where I am now with them, just how much growth they've made... I feel like I have been a beneficial factor to their growth. I think with having two teachers in the room, opportunities are endless.

In explaining the co-teaching choices she and her partner made, this participant said:

> (We did) A lot of parallel teaching at the beginning and that was probably the one co-teaching strategy that we used the most. She took high, I took low; I took high, she took low, and I just felt (that we could meet their needs) - even just quick assess - like are they following along? Are they pointing to their words? Are they understanding the content? Are they drawing what I'm drawing? You know what I mean? Little things like that. I've really felt like the kids were benefiting from that, and at this age, five, six, they're so needy.

When asked to focus specifically on her own development and not on her students', she explained that classroom management was the personal need best met by co-teaching:

> Honestly, classroom management because it's not something that I really got until I was in the building every single day with these kids every single day, every hour. When you're in other semesters, you're coming once a week. You're there for a whole day once a week but here, I just felt if I would have had the traditional way of student teaching, classroom management would have eaten me alive because I'm a control freak.

She further clarified that co-teaching allowed her to teach with someone who could model and explain different approaches and world outlooks, and the participant explained that being around someone with a "yoga" personality (presumably meaning a calm and slow-to-anger personality) helped her to calm down and not overmanage her classroom, which she believes is her natural tendency.

Co-planning was fluid for this partnership and the student teacher shared that "we right off the bat just did it together." Unlike most co-teaching recommendations, though, this pair did not have a regular established planning time. Instead, the two were in constant communication throughout the day, discussing ideas for upcoming lessons as they worked side by side. Then, one or the other would take responsibility for writing down the plan and preparing materials. The student teacher described the process like this:

> We talk all the time about everything, so if I'm thinking (about planning) for math next week, I'm like 'we could do this on Monday, this on Tuesday,' and we just

throw ideas back and forth. One of us types it up, and then it's good to go. We never really had sit-down, official co-planning sessions.

Emotions. Emotionally, student co-teaching seems to have been a personally fulfilling experience for this student teacher. As she describes her 16 week experience, the conversation is characterized by positive language, indicating that she believes she made a positive impact on children's lives. She explains that sorting out control issues allowed her to experience positive emotional growth – by realizing what she can and cannot control, acknowledging that while she cannot control their home environments, what she does "have control over is the time that (she has) with them every single day" – she is able to be "more calm" in how she handles the small problems that crop up in a teacher's day.

This participant also feels that the experience has increased her confidence and strengthened her belief in her own classroom leadership abilities, explaining that it "definitely makes me feel more confident" and stating that she has learned that "I do have the ability to lead a group of children. I can do it. It might scare me some, but I definitely think that I will be able to do it…" She did express some concern that it will be challenging to complete all the outside demands of teaching on her own, such as preparing weekly progress reports, organizing classroom materials, and so on; however, she also said she knows that she will find a way to accomplish what needs to be done. It seems that even when a possible negative emotion is expressed by this participant, it is viewed with optimism, as a challenge that can and will be overcome, rather than as a truly detrimental feeling.

Expectation. This student teacher described coming into co-teaching with few expectations due to the unknown nature of student teaching in general, and co-teaching, in particular. She recounted wondering "how am I going to fit in?" but then explained that she quickly realized that she and her teacher were a "natural" partnership, and that meeting the kids' needs through the use of co-teaching strategies was the most important goal of student teaching. For this participant, the primary expectation – meeting student needs - was met.

Feedback. This student teacher received frequent feedback, with the mentor teacher keeping a web-based shareable document that included daily notes on the student teacher's performance. She described this regular performance feedback as well as the informal student feedback she received as the most important sources of feedback she received. In regard to her students, she explained that "their reactions just tell me" how effective the instruction is. She also described being welcomed into the larger school community where "people viewed me as a teacher" and discussed how important that was to helping her feel comfortable and as if she belonged in this community. Formal feedback garnered from the university supervisor was not considered particularly helpful by this participant, as it seemed confined by the genre (a rubric) and was infrequent, occurring seven times throughout the 16-week student teaching experience.

Mastery teaching experiences. Because this student teacher participated in parallel teaching from the beginning of the experience, she had an opportunity to gain mastery experiences right away. In this classroom, station-teaching was frequently used with the two teachers each in charge of delivering instruction at different stations. The participant described this daily routine as being a place where teachers have "freedom"

and the "most fun" because "nowadays, everything is so scripted and it's not differentiated, and small groups is where you *can* differentiate and where you *can* be a natural teacher."

These station-teaching, small group opportunities have given this participant a chance to increase her knowledge, and she said that this approach allowed her to "play around with my knowledge" and "see what works, what doesn't work," while meeting the students' needs in a small-group setting. Within these groups, she also was able to gain experience using formative assessments to improve instruction, which she credits with allowing her to feel confident that students were receiving the instruction they needed. This participant also described delivering a whole-group literacy unit that she was proud of and that was successful with her students. This unit covered 30-days of instruction, and is something she created herself, from start to finish, allowing her to unambiguously attribute success to her own efforts.

Modeling. Modeling, while an important aspect of the co-teaching student teaching experience, seemed to figure less significantly for this participant than for others. It seems that this participant felt it was her role to take on a very active role in the classroom and she was almost apologetic when describing how she was able to gain knowledge related to some of the finer details of teaching by watching her mentor, "I just really felt like I saw her, I watched her. I know that sounds creepy, but I really did. I watched how she gains the kids attention. I watched how they responded to her." While the opportunity to see teaching modeled was valued, this student teacher did not feel it was a primary activity during her student teaching.

Reflectiveness. This participant described reflecting on a regular basis, and made clear that the reflection she engaged in was not the mandated journaling some teacher education programs require. Instead, this student teacher explained that she spent one hour per day in her car, and she used that time to improve her practice, saying

> I self-reflected a lot during that time. When I'm here (at school), all I think about is here. When I'm in my car, driving, you know what I mean? I'm not really thinking about anything, so I really felt like that was a time where I really self-reflected about how things were handled or what I did that day and I know not everyone has an opportunity like that, but for me, that really helped me... during my driving time, that was when I felt like I was gaining confidence in myself.

She also described reflecting on student growth, which allowed her to determine appropriate instructional strategies to try with various children and that also contributed to her feelings of success. She explained that her reflections have led her to conclude that

> (With co-teaching) There's so many more things you can do. You could always be pulling, you could always be assessing, you could always be doing that, and even if I'm not lead teaching, I'm still working with kids and I still feel I'm benefiting, and I'm just seeing them grow, and that was one of the most important things is I want to be a significant role in these children's lives for 15 weeks and I want to help them. Now that it's almost over, I saw that.

Social comparison. This participant described an utter lack of peer-based social comparison as "the best thing that's ever happened to me" explaining that she doesn't talk with many of her classmates and compare classroom stories. She clarified that her teaching context is impoverished and has challenges and that it would be detrimental to

her confidence to swap stories with student teachers who were placed in less-challenged settings. Clarifying this, she stated "I just feel like I have a really unique experience in that sense, but I felt I wasn't ever comparing myself to anyone else's experience, and I think that that allowed me to truly just look at myself in my own experience. It would be easy to compare."

Case summary. This participant experienced tremendous growth during her student teaching experience, and credited specific experiences with influencing her increased sense of confidence in her abilities as a teacher. Avoiding social comparison and engaging in frequent, self-directed reflection were two intentional choices made by this student teacher that she believes resulted in a positive, growth-producing experience. Additionally, engaging in co-teaching models that ensured she had an active role in the classroom such as parallel-teaching resulted in this student teacher acting the teacher role throughout the vast majority of the student teaching experience, and spending very little time as a passive observer. Her relationship with her mentor was a positive one, which enabled positive emotions to characterize her student teaching, and because this student teacher's expectation was that her job was to meet student needs as best she could, she also experienced little frustration due to inaccurate or unrealistic expectations.

Case Profile 2: Decreased Self-Efficacy

Unless otherwise noted, all quotations are derived from an interview conducted April 20, 2015. This participant's initial self-efficacy related to teaching score was 8.75. This score placed her at the top of the 90th percentile of participants, and this was the highest level of self-efficacy reported among any participants. Her final score decreased to 7.17, placing her in the 50th percentile of study participants, showing that her self-

efficacy related to teaching both decreased from initially inflated levels and also actually decreased in comparison to her peer group as well, as she dropped from the highest percentile group to the middle.

Co-teaching. For this participant, co-teaching was a process of gradual immersion where she, the student teacher, slowly increased her level of responsibility in the classroom. Despite having her student teaching placement split between two teachers, this student teacher tended to focus on her co-teaching experience with the teacher with whom she spent the majority of her day and with whom she felt she truly co-taught, as she described the second teacher as more controlling and as less of a co-teacher partner. In fact, during interviews (this participant was part of a focus group and an individual interview) it wasn't clear that the participant had a second mentor teacher until late into the conversation, so unless otherwise noted, responses reported here are in reference to her primary mentor with whom she spent three-fourths of the day, who will be referred to as her "primary" mentor and placement. In instances where the second mentor teacher is referenced, she will be called the "secondary" mentor and placement. During her primary placement, she described that one-teach/one-observe scenarios were frequent in the beginning and they gradually worked up to include team-teaching as well. This experience of team-teaching was considered rewarding due to the ability to work together and benefit from the knowledge of two professionals, gaining immediate feedback and "spot-checking" as they worked. She described it like this:

> I could totally thrive off of her and we could thrive off of one another and she would catch things that I would forget and instead of looking back on it at the end of the day and going, "Oh I should have done that," she told me right during the

> lesson, "Oh, don't forget to do ... " She would talk about it and so on. I just think that it was just so much better to have immediate feedback from her doing it. I just think that really worked.

Co-teaching was described as “beneficial to have two teachers in there” because “We can just exchange looks at who we need to really get to focus in on, and I think that's beneficial because it just made sure that I was correct, reassured me.”

Co-planning within her primary placement teacher played a significant role in this student teacher’s experience as well, with daily planning sessions dedicated to creating lesson plans for the coming days. During planning time, this participant described a gradual immersion process that began with her watching her mentor plan and by her contributing the occasional idea, and that ended with her planning entire lessons independently, though under the watch of her mentor teacher. Planning was an area where this student teacher recognized the most growth in herself, explaining that learning the efficiencies of planning and the logical processes her mentor employs has helped her to be much more effective and time efficient in her planning:

> It would definitely take me a long time because at first we would do all the planning and she would give me one subject and that's when I realized I was taking hours on one subject and I was like, "She got how many subjects in how many minutes?" That's when I was like, "Okay, I need to watch how she does this," again, just through observation and then I'd try it again.

In this student teacher’s secondary placement setting, she describes having less planning input due to the mentor teacher having an inflexible and pre-planned curriculum she preferred the student teacher to follow.

Emotions. This student teacher's co-teaching experience was characterized by a variety of emotions, swinging from extreme anxiety to excitement and joy. During the early weeks of co-teaching, the student teacher described crippling emotions, saying "I was so nervous. I was to the point of almost getting sick in the morning." However, as the weeks progressed, the student teacher explained that she held on to a bit of nervousness, finding it beneficial to not be too comfortable, and became excited. She described her feelings during the final week of student teaching this way:

> Excited with a little bit of nervousness still. I don't know why I still get nervous but I think it's just because I don't know if I'll ever be totally comfortable and I don't want to ever be totally comfortable. I want to be still not knowing exactly what to expect, because I totally don't know what to expect each day. I'm definitely excited to be here. I want to be at school. It's a good level of nervousness.

Expectations. This participant's expectations for student teaching – and for teaching in general – were self-described as unrealistic. The student teacher explained that her undergraduate teacher education training instilled in the belief that teachers can "fix every single student" but that classroom practice has showed her otherwise. Her disillusionment was described this way:

> I think that they (the university) tell you that you can fix every single student, and I realized that it's not very easy to fix every single student. You can impact them, but it's not like you can totally perfect them… I know that now I can use a bazillion different strategies to try to help them, but it's not guaranteed that any of those bazillion are going to work because you might need a bazillion and one

She further explained that past practicum placements had also contributed to this feeling of idealism, because when pre-service teachers visit schools a few times a week and deliver a single lesson, it's easy to feel that the lesson went well because it's decontextualized and there's no need or ability to evaluate whether students are retaining and applying the content you taught. During student teaching, she had the opportunity to fully evaluate the effectiveness of her instruction and identify when a lesson, even though it seemingly went well, did not result in the level of learning she had intended.

Feedback. For this participant, feedback played a strong role in her student teaching and came through spontaneous conversation while she and her mentor were in the midst of teaching, as well as through a formal notebook that was used by the mentor teacher to record observations and suggestions. This student teacher characterizes the feedback she received as both instructive and supportive, explaining that even when things did not go well, she wasn't made to feel poorly about it. Instead, her mentor teacher encouraged her to try again because "that's what tomorrow is for," and would provide some implementation suggestions as well:

> I'd say at the beginning it (my teaching) was more one of those things that when I talked to my teacher, I was like, "Do you see that disaster?" She was like, "Well, that's what tomorrow is for." I think at the end it was a little bit better, but at the beginning I would have to talk to my teacher afterwards a lot. I'd be like, "I don't know if I should have done it this way," and she's like, "Well, you could have done it this way, so try it tomorrow." It was more successful at the end.

With her secondary placement teacher, feedback was less regular and robust and handled informally through conversations post-lesson. The content of this feedback was general and "quick, like, 'okay, today went really well.'"

Mastery experiences. This participant, when asked about her independent teaching successes, seemed to have a difficult time addressing this and most answers actually reverted to her describing experiences where she saw teaching actions modeled. However, when pushed to describe her own successes in instructional delivery, the student teacher did explain that she knew her teaching had improved due to the feedback she received and because of the supportive nature of her relationship with her mentor:

> I remember at the beginning of the semester I was very nervous, even trying to get the kids to be quiet, but then my teacher was like, "Okay, we're both teachers." Once we started doing that, I feel like it built quite a bit, and then near at the end when I was solo teaching, I was like, "Okay, instead of doing this, we're going to switch this." I felt like I had a lot of (agency) ... and that's because my teacher's pretty awesome and was like, "This is your class too."

This participant also credited successful lesson planning with making her feel like a teacher, explaining that is was after successfully planning a week's worth of lessons that she realized she was becoming a strong teacher. When describing mastery experiences, no examples were shared in relation to her secondary placement.

Modeling. For this student teacher, modeling seemed to play a strong role in her development. This topic was introduced 6 times during an interview, and was a topic that the student teacher returned to, even when questions were directed at her work as a teacher, demonstrating that modeling played an important role for her. Particularly, this

student teacher described the impact that watching her primary teacher deliver instruction had on her, explaining that

> She's very active and fun to watch, very fun. I think that I've gotten that. I think so, though I don't know. She's told me that I have, at least. One time I was watching her teach, it was recently, and I was like, "Whoa." I miss watching her teach because she gets to the students. They really want to learn just because of the way she's delivering it, so that's what I want to be like.

In addition to gaining some of her mentor teacher's enthusiasm for teaching, this student teacher also credited the modeling of logical processes and efficiencies with aiding her own development. For example, lesson planning was something that was overwhelming and time-consuming during the early days of student teaching, but after having her mentor show her how she approaches things and explain the logical processes she engages, the student teacher became more comfortable in her own work.

In this case, the student teacher explained a slightly different approach to modeling that has been particularly helpful, which might be called enactive modeling. For this participant, in some cases modeling happened in the midst of active co-teaching, and modeled behaviors were able to be incorporated by the student teacher right away. The student teacher described this as "thriving," explaining that during co-teaching "I could totally thrive off her" and saying that she found it helpful to compare her own teaching actions with her mentor's during times that they were co-teaching.

Reflectiveness. Reflectiveness was not something addressed by this participant. Instead, this participant's comments focused on feedback and suggestions received from the mentor teacher, indicating that her primary source of evaluative information came

from external sources, rather than from a self-examination. The participant did explain that she found university-assignments, which presumably instruct students to reflect on their experience, to be an annoyance and detrimental to the student teaching experience, sharing during a focus group that this participant also was involved with that "it (university work) just takes away from the experience." (April 12, 2015)

Social comparison. Social comparison consciously functioned on two levels for this participant – she compared herself to her mentor teacher and found this to be beneficial to her development and she also acknowledged peer-group based social comparison which was detrimental. When describing the role comparison plays with her mentor teacher, the participant explained that

> As a teacher I think that I'm pretty decent, I guess, but then since we were co-teaching I was able to compare myself more. I think that it definitely made me better - to be able to teach with her and not just be able to see her teach - and then I had to do it. We were teaching together, and we could feed off of each other and I think I got better from teaching with her.

Peer-group based social comparison was not viewed positively, and this participant had concerns about being compared to other student teachers, describing it as "the worst thing ever" (April 12, 2015). She also expressed concerns about the way university supervisors recommend grades, believing that the diversity of supervisors will inevitably lead to subjective grades, and this may impact job applicants when transcripts are compared between participants from the same school who had different supervisors.

Case summary. This participant had a student teaching experience that was viewed as largely positive by the student teacher, due to a strong relationship with her

primary mentor teacher; however, despite this positive experience, her self-efficacy related to teaching decreased more than any other participant in this study. The student teacher herself is aware that her feelings of confidence have changed, because she began student teaching with unrealistic expectations about what a teacher can reasonably accomplish. She said student co-teaching showed her that she can't "fix" every student. This realization created a sense of disillusionment, and while the student teacher remains committed to the profession, she feels less efficacious that she once believed herself to be, because she now believes that teachers in general have less power than she previously thought.

This student teacher also describes more time observing and less time serving as an active teaching participant. While the student teacher understood the modeling to be beneficial because she felt her primary mentor to be a very strong instructor, it also seems that too much modeling resulted in curtailed teaching time. Since mastery experiences are imperative to self-efficacy growth (Bandura, 1997), this seems to be a strong factor in impacting the student teacher's sense of self-efficacy. When this student teacher did teach, she reported receiving robust feedback from her primary mentor, but limited feedback from her secondary mentor teacher.

Social comparison was also a concern for this student teacher, who described herself as having a lot of anxiety related to student teaching, to which the fear that others were outperforming her or were perceived as being better than her by supervisors contributed. She also did not report engaging in self-reflection, and she disliked university assignments that presumably required this, viewing them as a waste of time and a distraction from the real work of student teaching.

Case Profile 3: Stable Self-Efficacy

Unless otherwise indicated, all quotations are derived from an interview conducted May 6, 2015. This participant's initial self-efficacy related to teaching score was 6.04. This score placed her in the 35th percentile of participants, indicating she had relatively low levels of confidence in her abilities as a teacher when she began the student teaching experience. Her final score showed relatively no change, with her self-assessment placing her at 5.9, where these scores placed her in the bottom 10th percentile of participants ending student teaching. This indicates that while her self-efficacy did not dramatically decrease, its lack of movement means that she is no longer in step with her peers, with 90% of them reporting to feel more efficacious that does she.

Co-teaching. For this student teacher, her co-teaching partnership stood out from the others as one that struggled to enact the "co" in co-teaching. The student teacher described a very brief transitional period, during which time she began teaching one literature class full-time, and was asked to lead sections of other classes from the beginning as well, while also observing portions of class her mentor led. She didn't describe using any particular models of co-teaching, though it seems that like other participants, one-teach / one-observe is the appropriate descriptor, though rather than spend a day or class period observing as did other study participants, it seems that this participant was asked to both teach and observe in every class period from the very beginning. Interestingly, when asked to describe her co-teaching student teaching experiences, this participant describes situations where she was in the lead role, acting in a way that one would expect from the mentor, discussing various requests she made of her mentor and her disappointments when the ideals of co-teaching weren't realized and

she found herself teaching independently. This student teacher expressed disappointment that more true co-teaching wasn't achieved during the student teaching placement, because she recognized its value for students and because she felt she needed the support co-teaching is intended to provide developing teachers such as herself. Instead, she says, her mentor teacher often left the room and she was expected to learn the expectations and norms on her own. This participant shared a story that captures these sentiments:

> I was going to have him inside working specifically with the students on those body paragraphs, which they had all been taught exactly how to write them. He was just kind of supervising. I had given him and the kids checkpoints like, "When you get to this point, he has to approve it before you can keep going." I guess that didn't work as effectively as I wanted, because a lot of times the kids were still just coming back out there to ask me. It was supposed to be separate to help them get through this, and also for their own benefit. If I'm only looking for these skills, and he's on other skills. Because he hadn't been doing all the instruction, he didn't know exactly what I wanted them to do. Then, they kept getting confused. He wasn't getting to enough of them quick enough or he would just be doing other things. I had even talked to him a few days before like, "On Thursday when we're doing this lesson, this is what I have in mind for me to be doing, you to be doing. Is this okay?" He had said yes. Then, when the time came he was looking at the yearbook. Then, those kids were behind. I couldn't do both at the same time. It was a lot of things like that. I couldn't do much of probably the really cool parts of co-teaching, when you can both be instructing or both leading activities. That wasn't really his style, or something, - our

> communication and planning never really allowed for. Then, it was a little disappointing that even when I tried to do things like that, where we could do separate things simultaneously, they didn't work as effectively as I would have liked them to do.

The planning aspects of co-teaching were not described at collaborative in this arrangement either, and this was attributed to a lack of communication, the student teacher's suspicion that the mentor teacher did not have clear direction for the lesson, and also a possible generational gap between the partners. When the two did try to co-plan, the student teacher described the experience like this:

> I felt like there was almost an unwillingness or a disconnect on that. That might be because he's very close to retirement. A lot of times, I felt like there was a clash of old teaching styles versus new teaching styles. I'm trying to see what can we do together, what can we do creatively. He is just like, "Let's open up the textbook and read and do questions." And, I don't know… Again, to talk about how I don't know if he had a plan. That kind of affected how I was able to plan with him, or independently.

Similarly, classroom management was a challenge due to similar issues described by the student teacher: a lack of a clear plan, minimal communication, and different expectations about how a classroom should run.

Emotions. This co-teaching experience was characterized by feelings of lingering uncertainty, with the student teacher describing disappointment that she was not able to leave her student teaching placement confident that her skills had improved. In particular, the student teacher expressed concern with the limited experience and

mentorship she received in regard to classroom management, as she feels her existing knowledge based and content expertise allowed her to be successful in most other areas. She also described feelings of discomfort and a lack of confidence due to the relative independence of her placement, which she characterized as resulting in her teaching on her own and without mentor input. Describing her emotions throughout the co-teaching experience, this participant explained,

> At the beginning I was so excited and had all these ideas about teaching, and what I wanted to do, and how I wanted to interact with the kids. Then, like I said, because it was kind of just so hands-off, and even when I felt like I was blatantly asking for feedback or asking for advice or for support, I never felt that mentorship. Because of that, it was like every day I was doing something I didn't feel confident or comfortable in. Then, that kind of chipped away. I felt like I was doing things wrong, a lot of the time, with no knowledge of how to improve it.

Despite the overall negative emotional experience, several experiences have bolstered the student teacher's confidence. She was recently offered a teaching job, which she accepted, and that allowed her to understand that others believe her a capable teacher, and she received feedback from her students indicating they learned from her and appreciated her efforts.

Expectations. This student teacher's expectation for student teaching seemed to focus on her own development, expecting that she would be mentored and guided through the teaching process. She describes this like this:

> …it was like, "I thought you took me on as a student teacher because you wanted to mentor me and teach me how to be a teacher." It kind of felt like what I said when we made that switch, where I was full-time. It's kind of being thrown in the deep end and trying to figure out how to swim without much instruction.

She also expected that co-teaching models and practices would be followed in the way she had learned about that at the university, and when they were not, feelings of negativity were furthered.

Feedback. Feedback was something this student teacher valued greatly, but that she found to be lacking throughout much of her experience. Initially, she had hoped to "be encouraged, but also have quality teaching displayed for me, and then me do it and talk about it," but this did not occur. Instead, feedback was infrequent and only occurred when a university supervisor's presence forced the issue. The student teacher did receive positive evaluations, but due to their general nature and the lack of timely feedback, she did not take benefit from them. She explained her disbelief this way, with the comment of "okay, but not really" used to indicate that he might think she is "fine" but she does not, because she had expected more from the experience.

> I feel like, again, a lot of it was just like, "Oh, she's fine, so let's just grade her all high and never tell her anything to work on." I would have really liked that feedback and that narrative. Those were the only times (when a supervisor came) when he was like, "Yeah, yeah. She's doing good. She's fine." It's like, "Okay, but not really."

Despite not receiving the type of feedback she desired from her mentor teacher, she did ultimately gain student feedback that improved her feelings of confidence and

that enabled her to feel that she is developing into a teacher. While this transitional feedback came at the end of student teaching and did not impact her confidence while she was student teaching, she does believe it will improve her teaching and related confidence as she moves into her new role as an English teacher next year:

Participant: On my last day last week, I just did a little formative thing… Then, I just said for fun, "Write me a note." I thought they'd just be like, "Bye. We'll miss you." but a lot of them said specific things to me like, "I feel like I'm a better writer because of this lesson that you taught us." or "Because you paid attention to use, and you always ask us about our lives, I can tell you're going to be a good teacher." That was really cool and surprising in some ways. It's a mandatory class, so they don't really want to be in there. They don't like writing and that's okay. I was really surprised when some of those comments were even talking about, "You helped us with our writing. I feel better about it." or "I didn't like writing before, but this had been a fun class." Those written comments were encouraging, but they came on my last day.

Researcher: How did that make you feel about your teaching?

Participant: That did make me feel better. Like I said, all the while without getting any feedback or any affirmation I was like, "Man, I have no idea what I'm doing. I don't really know if my students are going to be able to leave this and be ready for college, and be ready for other writing, other classes." Then, those comments, hearing from

> them specifically, were encouraging. I could see the things I did well. I also asked them to tell me the ways that I could grow. That was encouraging too, because I think I can work on those things. It's not like I'm not going to be a good teacher or whatever.

This student teacher remarked that "it's not like I'm not going to be a good teacher…" after discussing these notes, indicating despite the lack of growth-producing and confirming experiences she had desired, these notes reminded her of her dedication to the profession.

Mastery experiences. This student teacher's student teaching experience was associated with more independent teaching than other study participants, but with that said, these first hand teaching experiences seem to be less meaningful to this student teacher, and were often introduced with statements that indicate the lack of feedback and mentoring support left her unable to gauge how successful her efforts were. While the student teacher could not recount an experience that she would consider a total failure, there were limited experiences she felt truly confident in. However, the participant did explain that teaching literature, because of her strong academic preparation, allowed her to gain mastery experiences and that, when combined with feedback from students, she was able to experience the success created by her own agentic behavior. She explained that after gaining mastery experiences, "I noticed when I was teaching, 'Wait. I actually do know what I'm talking about.' I think I was afraid … A couple weeks into it I was like, "Yeah. I do know what I'm talking about. I can do this."

She also shared an example of a creative project she created to culminate a unit, which she described as having a positive impact on her feelings about herself as a teacher:

> I wanted to just do something a little bit different to provide a memory for them. It (the lesson she created that she thought would be memorable) went really well. It made me feel good. Not only are they meeting all the standards I wanted, but every small group there was talking, I was listening, was successfully addressing (questions) using what I designed three weeks ago. They were actually having fun. I think they will remember that. I know I remember that lesson - talking about it right now - because it stands out.

Modeling. For this student teacher, the student teaching co-teaching experience was characterized by a very limited amount of modeling and even less conversation contextualizing the modeled behaviors. Two areas where this was particularly concerning to this student teacher were in regard to classroom management and instructional planning. This participant explained that she expects to spend the summer trying to overcome what she views as a developmental gap in her transition to becoming a teacher, saying

> As I'm preparing for my teaching job in the fall, I feel like all summer, I'm going to have to learn how to be a manager, when really, that probably should have been going on during the student teaching…I wanted to, again, see that (the management plan) created by the teacher and then kind of me be brought into that and enforced by both of us and have that support, instead of having no plan and no consequences…

She also explained that lesson planning was an area where she needed the processes modeled, but that her requests for this were denied or were met with an unclear response:

> There were times where I would be like, "Can we conference today?" I'd sit down with calendars and maps. He just couldn't really give me clear instruction.… Because I'm brand new, and he was kind of supposed to be mentoring me, that was really frustrating but also unhelpful, I think, to building my confidence as a teacher.

Reflectiveness. This participant described reflecting when she completed university-required reflection assignments, and she did find these a beneficial way to interrogate her own teaching strategies and ensure she was challenging herself to improve her lessons daily. She also described engaging in self-reflection, interrogating herself after teaching a lesson using the same questions her university supervisor asked her to address during assignments, which the participant summarized as "how are you designing your lessons…, how can you keep that attitude up?... and How do you keep up that engagement for them, but also for me?"

Social comparison. For this participant, social comparison crept in by way of placement-envy. This participant seemed to compare her experience to the actual and presumed experiences of other student co-teachers with whom she was acquainted, explaining that they had more supportive mentors, better access to resources, and stronger and more regular performance feedback. She explained that she was at a disadvantage because

> My friends, who are co- teaching, they would tell me the first the few weeks, their teachers gave them curriculum maps. Even, one of my friends, they gave her lesson plans for the whole year. She could cater them to be her own. He had nothing for me. I literally could only see one step ahead at a time.

In regard to feedback, she also recounted times that her mentor was not in the room to witness a successful mastery experience and thus could not provide her feedback, saying "I don't think that's most people's co-teaching experience."

Case summary. Despite experiencing a co-teaching arrangement that failed to meet this student teachers' expectations, her self-efficacy remained largely stable. However, it is important to note that even while there was little change in terms of the survey data collected, when compared to the cohort of participants, her placement declined with her ending with self-efficacy in the bottom 10 percent of participants.

This participant's co-teaching experience was characterized by uncertainty caused by a lack of feedback and the perception of a mentoring deficiency. She reported often teaching independently and without feedback, which caused her to wonder if she was doing things correctly, and it was not until the end of her student teaching experience that she received some strong positive feedback from students that she gained confidence in her abilities.

While this student teacher's placement and co-teaching partner may not have provided the types of feedback desirable for co-teaching student teachers and for self-efficacy development in particular, she did report having a supportive university supervisor. Helpful to her were university assignments that caused her to reflect on her own teaching and learning while teaching. Detrimental to her were social comparisons

made between herself and others in her student teaching cohort, where she compared her placement with others and assumed they were in more supportive settings and were thus better able to do the job.

Comparison of Experiences across Cases

To examine the experiences that seem to impact self-efficacy development, I constructed a word table, which allowed me to compare the dominant thematic elements discussed within each individual case visually across cases (see Appendix I). This allowed me to identify key points that may impact self-efficacy development.

Co-Teaching Orientation

The first point of contrast that became apparent relates to the student teachers' co-teaching orientations. Co-teaching orientation refers to student teachers' beliefs about co-teaching and its purpose / value, and this synthesis is drawn from thematic categories of "co-teaching," "expectations," and "emotions." Orientations might be described as mentor-focused, self-focused, and student-focused.

In this study, the student teacher with decreased self-efficacy related to teaching was very much focused on her mentor who she considered an expert teacher, and she understood co-teaching as a way for her mentor to provide her structure and support while she fulfilled her personal teaching expectation of being able to "fix" every child in her class. This student teacher quickly became disillusioned of her unrealistic expectations, and while she maintained what seems to be a healthy level of confidence, she no longer feels as capable as she once did. Additionally, the structure and support she desired and received in her co-teaching relationship seems to have prevented her from identifying experiences where she acted as an agentic professional, likely because "one

teach, one observe" seems to be an oft-used model of co-teaching with this student teacher acting as the observer. Self-efficacy theory explains that when too much assistance is provided, attribution becomes problematic (Bandura, 1997), and this seems to be an issue in this situation as well. For example, when asked to describe experiences where she felt her own efforts had created positive or negative results, she most often instead discussed modeling experiences or times when she received feedback during a shared co-teaching experience. Mastery experiences are considered the strongest source of efficacy information (Bandura, 1986, 1997; O'Neill & Stephenson, 2012; Ronfeldt & Reininger, 2012), and limited mastery experiences may impact self-efficacy beliefs. Both modeling and feedback are important sources of efficacy information (Bandura, 1997; Bautista, 2011), but they are not thought to replace mastery experiences.

In the case of the student teacher whose self-efficacy related to teaching remained essentially stable, the orientation toward co-teaching was similar to the previous, though the emphasis on personal development and the self was more strongly stated. In this case, co-teaching was viewed as a developmental journey where the student teacher would benefit from the mentor's expertise and support. When disillusioned of this idea due to a reportedly poor placement situation, the student teacher's feelings of frustration multiplied and she felt cheated because the expectation she had was not met. Impacting her self-efficacy was the lack of modeling and feedback that is considered important to self-efficacy development (Bandura, 1997). Additionally, rather than judge the success of her independent efforts based on student learning and growth, the focus on her own development seemed to blind her to the wide variety of first-hand opportunities she received while in this situation, so while the breadth of mastery experiences she had may

have prevented her from a dramatic reduction in self-efficacy, they also were not appreciated to the full extent that would have enabled personal growth. Self-efficacy theory recognizes the importance of feedback as well as the importance of a clear goal, with Bandura (1997) noting that efficacy beliefs are more easily translated into corresponding performance when there is a specific destination in mind and the feedback about one's performance is both timely and accurate (1997, p. 67). This relates to co-teaching in that having a partner and guide to provide such feedback may allow for a more accurate development of efficacy and thus agency.

The co-teaching orientation that seems to enable self-efficacy growth was held by the student teacher who demonstrated the largest amount of self-efficacy growth, and this orientation focused on the students and what co-teaching could provide them. Such a focal point means that there is no undercurrent – perceived or real – of tension related to issues of control and there is no fight for instructional dominance, as that's not the expectation or goal of co-teaching. Likewise, with student learning as the ultimate expectation, self-evaluation is less important than self-reflection on how one's actions impact student learning. This focus on student learning also led to co-teaching characterized by "parallel teaching" to be most often employed, which provides an extended mastery experience due to the nature of leading one's parallel group, while also providing the support of teaching with a second professional, in this case, a mentor.

Mastery Experiences, Modeling, Feedback, and Emotions: The Traditional Self-Efficacy Sources

The second major point of contrast that became apparent related to self-efficacy sources and how that information impacts overall self-efficacy development over time.

Mastery experiences, modeling, feedback, and emotions are considered the primary sources of efficacy information, and these cases align with theory regarding their importance. Modeling, while considered a strong source of efficacy information for novices (Bandura, 1997) actually proved to be limiting when used excessively and is associated with a decrease in overall self-efficacy. Likewise, the co-teaching experience characterized by much growth reported that modeling was not a large part of the experience, and instead mastery experiences were plentiful from the very beginning.

Mastery experiences are those that allow student teachers to gain first hand, enactive experience as a teacher. These experiences seem to be extremely valuable, and most conductive to growth when combined with feedback, with Bandura noting that while on its own, feedback is "limited in its power to create enduring increases in perceived efficacy…" (p. 101), "Ability feedback in the early stages of skill development has an especially notable impact on the development of a sense of personal efficacy" (p.102). For instance, the student teacher who experienced much self-efficacy growth indicated that her co-teaching experience was filled with enactive mastery experiences from start to finish and that regular, timely feedback was made available to her. In the case of the student teacher whose self-efficacy remained stable, she also engaged in mastery experiences from the semester's start. However, she did not receive the performance feedback that others found to be so meaningful. Finally, in the case of the student teacher whose self-efficacy declined, mastery experiences were limited. Modeling and feedback were plentiful, but the opportunity to truly act as a teacher seemed to be very limited in this participant's experience.

Bandura (1997) explains that emotions are considered a weak source of efficacy information, and in this study emotions did not seem to have a strong, consistent relationship with self-efficacy changes. The student teacher whose self-efficacy grew recounted positive emotions, but the participant who shared a plethora of negative emotions did not actually decline as her reported feelings might lead one to believe. For the participant whose self-efficacy did decline, the fear and feelings of sickness experienced early on in the student teaching experience might have served as an indicator of a problem, but by the experience's end, she felt excited to teach despite lingering anxiety. In short, these emotions seem to serve as a supporting information source rather than as a primary source of efficacy information.

Reflectiveness

A third point of contrast was student teachers' engagement in reflective activities, which proved to be an important differentiating point between student teachers and appears to be related to self-efficacy change. The student teacher who engaged in spontaneous reflection experienced increased self-efficacy and an overall positive experience, finding meaning in her work as she worked to meet student needs. The student teacher who described completing assigned reflections and finding them valuable had no change in her self-efficacy, and the teacher who did not reflect and who did not enjoy the university assignments experienced a decreased level of self-efficacy. While reflection cannot be said to be causal, it does seem to bear a relationship to this important construct.

Social Comparison

Likewise, in this study, social comparison seemed to play a strong role in teacher development and self-efficacy change. Participants who engaged in social comparison did not experience increases in self-efficacy and this practice seems detrimental to the emotional aspects of student teaching. Social comparison seemed to foster feelings of inequity between placements and fear of inaccurate comparisons being made between student teachers. When one student teacher recognized the destructive nature of social comparison and chose to avoid it, she discovered "the best thing to ever happen" to her and experienced a high level of growth in her self-efficacy and also enjoyed her student teaching placement.

CHAPTER FIVE: DISCUSSION AND IMPLICATIONS

This study was conducted to explore and better understand the experience of co-teaching as a student teacher. This topic is one of importance, because co-teaching is quickly becoming the standard method of completing the requirements of student teaching. Of particular interest in this study was how co-teaching impacts self-efficacy development. Typical student teaching experiences are shown to positively impact student teachers' self-efficacy (Knoblauch & Woolfolk Hoy, 2008; Mulholland & Wallace, 2001; O'Neill & Stephenson, 2012), but until now it was unknown if co-teaching provided a similar range of experiences as traditional student teaching did and if it could equally impact self-efficacy development.

With this purpose in mind, three key questions were addressed in this study:

1. How do student teachers engaged in a co-teaching student teaching arrangement experience the classroom role of teacher within this setting?
2. How much does co-teaching as a student teacher impact a pre-service student teacher's sense of self-efficacy related to teaching? and
3. What are the experiences of co-teaching as a student teacher than inhibit, enhance, or maintain one's sense of self-efficacy related to teaching?

To answer these questions, I found it necessary to use mixed methods research. My first research question was addressed primarily through data collected from two focus

groups, though findings were triangulated with other data sources to ensure credibility. The second research question was addressed by using quantitative survey methods that generated numeric data and by employing statistical analysis. The final question was addressed by using the results of the quantitative survey as a selection mechanism and then by conducting in-depth interviews to learn about individual experiences of co-teaching. This interview-generated data also was triangulated with focus group findings to check for consistency and ensure credibility.

Discussion of Key Findings

Co-teaching was found to be a period of transition, where student teachers struggle with the difference between being a teacher and simply being a person performing the acts associated with teaching. Despite this tension within one's self-definition and developing sense of professional identity, co-teaching was seen to positively and significantly impact student teachers' senses of self-efficacy related to teaching, and specific experiences appear to bolster or inhibit self-efficacy growth.

Question 1: The Experience of Being a New Teacher as a Co-Teacher

In addressing Research Question 1 (How do student teachers engaged in a co-teaching student teaching arrangement experience the classroom role of teacher within this setting?), I found that they experience this role as one of transition as they move from their current status of 'student' to their future status of 'teacher,' and this transition is marked by the activities they do or do not complete. For these student teachers, co-teaching marks a transitional period of time, as all student teaching placements arguably do, when student teachers are experiencing a change within themselves as their professional identity shifts from the student role to one of teacher. This developmental

shift results from the triadic influence introduced in social cognitive theory (Bandura, 1977), and includes influences from the individual, the behavioral, and the environmental. In an article clarifying gender-based identity development, Bandura and Bussey (1999) clarify that role-based behaviors are communicated through others modeling behaviors, by engaging in the behaviors one's self thereby gaining mastery experiences, by gaining feedback from others, and through direct instruction. In this model, identity development is the result of increased agency in a given domain of functioning (Bandura and Bussey, 1999), and because agency is the direct result of increased self-efficacy, with self-efficacy impacting the goals individuals set and the actions and intensity taken to purse those goals (Bandura, 1997), it is clear that self-efficacy is a foundational element of identity development. For pre-service teachers, then, this means that a teacher component of identity will develop after self-efficacy related to teaching increases to a point that the pre-service teacher becomes an agentic being in the domain of teaching, exercising their decision-making authority to take intentional action, which is the definition of agency (Bandura, 1997).

Within this definition of development, co-teaching is understood as a unique growth opportunity, encompassing all external and thus controllable aspects of development (modeling, mastery experiences, feedback, direct instruction). For instance, direct instruction is provided at the university level in methods courses and should be provided during the student teaching experience by both mentor teachers and university supervisors. Modeling is available through the mentor teacher, and first hand opportunities to gain mastery level experiences also abound, so long as participants don't over rely on co-teaching models that place the mentee in an observer role. While there

certainly are aspects of this development that cannot be controlled – and social cognitive theory of self-efficacy reminds us that we are contributors to the end result, but not in control of it (Bandura, 1997) – when it comes to the development of pre-service teachers, co-teaching seems well-situated as an ideal growth environment, provided that all participants have been adequately trained on their responsibilities.

Effectively communicating participant roles and ensuring follow-through does seem to be a challenge experienced by some participants, with different duos enacting co-teaching in ways that did not result in a truly collaborative teaching experience. While literature indicates that co-teaching provides support and collaboration that is lacking in traditional arrangements (Bacharach, Washut Heck & Dahlberg, 2010; Badiali & Titus, 2010) it seems that well-trained participants gain these benefits, but haphazard co-teaching that is done without intentionality and care does not necessarily foster the supportive and collaborative environment so desired. This indicates that care must be taken to allow participants to succeed in their given roles. However, despite imperfect (and human) co-teaching experiences, participants in this study still experienced transition and felt themselves grow and develop. This likely is because some poorly executed co-teaching experiences result in a student teaching experience much like the traditional approach; however, some poorly executed co-teaching experiences resulted in an overabundance of observation and limited action, which was not beneficial.

In this study, development was experienced by its participants, though this period of co-teaching also was marked by tensions between doing a job and being – or embodying – the teacher role. Despite this tension, student teachers largely report movement toward identifying as a teacher, though participants were not yet fully able to

call themselves "teacher" at the end of student co-teaching, perhaps because while self-efficacy did generally increase, the limited amount of solo teaching time naturally limited agency due to the circumstances of co-teaching. This finding of limited independence is consistent with what is reported in other literature, with Gallo-Fox et al (2005) questioning whether it is possible for a co-teaching student teacher to fully take on the responsibility and authority of a true classroom teacher during the experience. This finding also aligns with tenets of self-efficacy and social cognitive theory. For instance, agency is defined as one's ability to take intentional actions that are meant to create specific outcomes (Bandura, 1997), and while co-teaching certainly can (and often does) allow for mastery experiences where student teachers exercise some degree of agency, these mastery experiences are most often accomplished after consulting with a mentor during planning, and performed with a mentor looking on and perhaps occasionally intervening. So, while the student teacher may be gaining firsthand experience, they may not be exercising their agency to the full extent possible. Given these circumstances, attribution may become problematic, which will limit one's ability to make full use of the source of efficacy information (Bandura, 1997; Woolfolk Hoy & Burke Spero, 2005). However, unlike concerns published by Yopp et al (2014), the co-teachers in this study did not question if they were ready for their own classrooms. Despite not identifying fully as "teachers" and despite mentioning that they were aware that co-teaching was not entirely realistic of an actual teaching placement due to the increased number of teachers in the room, participants also clearly stated that they felt capable of taking on their own classrooms in the future. Even a participant who had a generally negative co-teaching experience made comments suggesting that she still believes in her own abilities to

succeed as a teacher, but that she knows she will have to work on her own development over the summertime and during her novice year more than she believes her peers must do. The question is, then, is this limited agency within the context of co-teaching a negative thing? I suspect it is not, so long as mastery experiences are gained in a wide variety of areas so that the pieces might eventually be put together during one's novice year of teaching. It also is important to keep in mind that even among student teachers who were traditionally-trained, identity development may not be a completed process depending on one's ability to fuse the expectations placed upon teachers with one's own preexisting identity beliefs (Alsup, 2006). While the hope is that co-teaching exceeds traditional methods of teacher training in all ways possible, this hope may not be realistic, and since co-teaching meets many practical needs (Hartigan, 2014), accepting this alternative as being *as good as* the traditional method while overcoming problems with pre-service teacher placement and staff shortages in K-12 schools may be an appropriate compromise while we strive to perfect the model.

For the student teachers in this study, the transition from student to teacher was shared through discussion that often centered around "doing" the various activities that impacted (or detracted from) their senses of becoming, and this ultimately resulted in the 'experience of co-teaching' being thematically coded primarily by action verbs that mark this transitional time.

While performing the many activities of teaching, student teachers found that hands-on teaching experiences, when combined with timely and detailed feedback, pushed their development forward while simultaneously boosting their confidence in their teaching abilities. This is consistent with the self-efficacy literature, and these

experiences are believed to exhibit the strongest impact of self-efficacy development (O'Neill & Stephenson, 2012; Ronfeldt & Reininger, 2012). Time spent instructing students, particularly when the student teacher was placed in the lead teacher role that is made available through co-teaching scenarios such as one-teach/one-observe and one-teach/one-assist, was found to be particularly helpful. This was also true when it came to instructional planning, with student teachers finding that experiences where they took on a leadership role were helpful to their development and feelings of confidence in their teaching ability; however, planning also is an area where acting as the observer was found to be very helpful and rewarding, because this allowed the student teachers to see the logical processes of teaching modeled in ways that impacted their future planning and approach to instruction. Observing instructional delivery seems to have had less of an impact on student teachers, presumably due to their 16-year history of being a student and observing instruction already. This finding, while initially surprising, aligns with self-efficacy theory, which states that vicarious experiences may be powerful sources of efficacy information when one has no prior experience, but when one does have prior experience, mastery experiences are the strongest source (Bandura, 1997). Developmentally, it is likely that student teachers have absorbed all the instructional modeling they can take and are ready to engage in the first-hand activity themselves. They have not, however, observed instructional planning, so in this domain of teaching, the power of observation is great.

Of particular importance to student co-teachers were professional activities that take place outside the classroom, such as interacting with parents and other teaching professionals. Student teachers who were embraced by the community and made to feel

like a welcome professional found this to be an important factor in their own development, while student teachers who felt excluded from this larger community felt this detracted from their ability to identify as a teacher. It seems that this professional recognition outside of the classroom served as a particularly powerful source of verbal feedback, and verbal feedback is considered a strong source of self-efficacy information for novices, and for student teachers in particular, who represent the most novice version of a teacher (Bandura, 1997; Nielsen et al, 2008; O'Neill & Stephenson, 2012). Likely bolstering this sort of feedback's power is its unexpectedness which lends credibility to its sincerity. Inside the classroom, student teachers may expect to be called 'Ms. Doe' or 'Mr. Doe' and to be treated as professionals, but outside the classroom and in the larger community there is no requirement that they receive this treatment, thus when it does occur, it is powerfully felt.

While social cognitive theory of self-efficacy positions social comparison as a powerful source of self-efficacy information in that it can be viewed as peer-to-peer modeling (Bandura, 1997), in this study it was found to be detrimental to individual development. Social comparison played a role in this transitional period, and all participants discussed this phenomenon as being a detrimental one, creating feelings of frustration and uncertainty about one's own development. Particularly challenging were situations where multiple co-teachers were placed in one instructional setting, and social comparison become multi-dimensional, with peer-to-peer comparison taking place while mentors also compared student teachers to each other and made these practices known to student teachers. It seems that social comparison created a level of competitiveness that may be typical of a teacher's break room, with teachers sharing stories about how great

(or how awful) a day's lesson went or how their students scored on a standardized assessment, but that student teachers are not yet ready to handle, as their own development is still in such a fragile state. Social comparison is framed as being assimilative or contrastive by Mussweiler and colleagues (2004), with assimilative comparisons functioning just as Bandura (1997) explained, positively impacting self-assessment when a peer is seen to be successful at a task that an individual will soon undertake. However, in contrastive situations, the mindset is different and rather than draw connections between the self and the peer model, the individual finds differences that constitute road blocks or points of tension that at a minimum create mental hurdles. Interestingly, group membership is seen as a strong factor encouraging assimilative comparisons to be made (Mussweiler et al, 2004), and one would assume that being a student teacher and a member of a student teaching cohort group would provide a unifying factor and allow assimilative responses, but in this study that was not the case. It seems that the local contextual factors (such as school setting, student body makeup, and mentor teacher personality, for example) outweighed the unifying effect of group membership. In in-service teacher situations, this is sometimes true as well, with Kitchel and colleagues (2012) questioning the culture of teacher communities, wondering "…does the professional culture allow for teachers who perform the job in different ways, or do professionals scorn others who are perceived as being different?" (p.38). This also speaks to the issue of identity and the conception that there is an "ideal" or "correct" way to be a teacher (Alsup, 2006), which universities have an obligation to prepare students for and to counsel them through.

Classroom management while co-teaching seems to have played a lesser role than other experiences, though student teachers did feel this aspect of co-teaching benefitted the children in the class simply due to the presence of multiple adults. This is an area of co-teaching that it seems student teachers were likely to directly disagree with their mentor's practices, eschewing behavior management systems dependent upon behaviorism principles of conditioning, and instead using this as an opportunity to reflect upon what they believe could work better. This likely reflects a generational difference between mentor and student teachers, with older approaches to classroom management favoring methods grounded in behaviorism, which experienced its "last gasp of popularity" in the 1990s, and has been commonly replaced by cognitive theories and related methods grounded in theories such as social cognitive theory and cognitive constructivism (Roediger, 2004, para. 7). This finding differs from what has been published, with literature positioning classroom management as a unique opportunity for student teachers to learn through vicarious experience as their mentor models management strategies (Mulholland & Wallace, 2001).

Complications to the experience. Within the co-teaching arrangement, several complications were experienced that warrant additional consideration. The tension between independence and dependence, the experience of multiple student teachers within a single grade level, and the concerns with co-teaching implementation all are areas that universities might address within their curricula.

A particularly interesting tension is that student teachers desire the support of and feedback from their mentor teachers, especially in one-teach/one-observe teaching arrangements where they act as the lead teacher, but they report feeling the most capable

and teacher-like during the times that their mentors are out of the classroom for one reason or another. During these times, when the mentor teacher is away on sick leave or taking vacation time, the student teacher is most able to exercise his or her agency, and it seems that student teachers recognize this as a positive growth element even while they still desire performance feedback. This tension also is indicative of the power dynamic that frequently plays out in co-teaching scenarios (Carson, 2011; Kamens & Casala-Giannola, 2004) and speaks to the need to ensure student co-teachers are placed in settings where they are able to contribute and make choices throughout the experience, and not only on the occasions that a mentor is ill or otherwise out of the classroom.

The nature of K-12 schools and the advent of professional learning communities and grade level planning teams also created complications, particularly when there were multiple student teachers on a grade level team. Student teachers found that co-planning was not simply a matter of planning with an assigned mentor teacher; instead it was a matter of co-planning with another student teacher, and at least two mentor teachers, though more often three or more grade level teachers. While co-teaching is sometimes viewed as a way to socialize student teachers and bring them into the collaborative norms of the model school setting (Scantlebury, Gallo-Fox & Wassell, 2008), in this study the student teachers felt that co-planning with such a large team was overwhelming and created unnecessary tensions between student teachers, in particular. Instead, these student teachers felt that co-planning directly with their mentor was a better alternative in allowing them to build their skills.

Question 2: Co-Teaching's Impact on Self-Efficacy Related to Teaching

Self-efficacy related to teaching increased for this group of student teachers, rising from an initial mean score of 6.31 to a final score of 6.99. This increase was statistically significant ($t(26)=-4.31$, $p = .01$, $\alpha= .05$) and brought with it a medium-to-large effect size as well ($d =.78$).

This growth alleviates concerns that co-teaching may not provide student teachers with the types of experiences necessary to establish a strong sense of self-efficacy related to teaching by demonstrating that this alternative model creates significant amounts of growth, as traditional models have been shown to do in the past. While it is impossible to make direct comparisons between this study and published studies of traditionally-trained student teachers self-efficacy growth due the fact that some studies use a shortened form of the TSES (Tschannen-Moran & Woolfolk Hoy, 2001), some studies publish change scores, but not actual raw composite data (Sahin & Atay, 2010), other studies used scales that were modified or otherwise different that the one used in this study (Woolfolk Hoy & Burke Spero, 2005), and still others using test-retest designs with pre-service teachers administer the tests at either different points in time or without clearly describing the points in time (O'Neill & Stephenson, 2012; Putman, 2012; Swan et al, 2011), they do show that in populations of student teachers who completed student teaching, there was significant growth at the .05 level (Sahin & Atay, 2010; Woolfolk Hoy & Spero, 2005), as was the case in this study as well.

Demonstrating the positive trend presented by co-teaching was one finding of this study, though in addition to understanding the group trend, I also sought to understand the experiences of individual co-teachers with varying levels of self-efficacy. For example, I

sought to understand the experiential differences between co-teachers with high growth versus those with little or no growth. By comparing the different settings and experiences, I hope that the influencing factors of placements that resulted in high levels of self-efficacy growth might be replicated in placements for future student teachers and that we might learn from the experiences that seem to detract from self-efficacy growth.

Question 3: The Experiences of Co-Teaching

Within the framework of co-teaching, I sought to understand the specific experiences that impacted student teachers with different levels of self-efficacy change. With this purpose in mind, I invited the participants with the greatest decrease and the greatest increase in self-efficacy related to teaching to participate in individual interviews, and I also invited a participant who exhibited stable self-efficacy to participate as well. Through these individual stories, it became clear that as expected and as shown in other studies, traditional sources of self-efficacy information such as mastery experiences, modeling, verbal feedback, and emotional arousal (Bandura, 1986, 1997; Bautista, 2011; Mulholland & Wallace, 2001; Nielsen et al, 2008; O'Neill & Stephenson, 2012; Ronfeldt & Reininger, 2012), played a role in this experience, though there were unexpected findings as well, with expectations, beliefs about co-teaching, self-directed reflectiveness and social comparison appearing to play important roles in one's development of self-efficacy during student co-teaching.

Findings related to the traditional sources of self-efficacy (mastery experiences, modeling, feedback, and emotions) predominantly confirm previous research, with a wealth of mastery experiences proving to be beneficial to student teacher's self-efficacy growth (O'Neill & Stephenson, 2012; Ronfeldt & Reininger, 2012). When these mastery

experiences were combined with frequent, specific performance feedback participants felt even more efficacious, as was also reported by Ronfeldt and Reininger (2012).

Modeling resulted in mixed findings. As suggested by theory and shown in other research, modeling exerted a powerful impact on student teachers and their developing sense of self-efficacy (Bautista, 2011; Mulholland & Wallace, 2001; Nielsen, Barry, & Staab, 2008). Those who experienced much modeling attribute it as a growth factor, the one who did not experience much modeling understands this deficiency to have contributed to less growth than she desired. However, too much modeling runs the risk of crowding out mastery experiences or possibly confusing what could have been a mastery experience with a lesser experience where the mentor teacher serves as an expert model and the student teacher serves as an assistant observer. This also may be linked to attribution issues, with research showing that too much intervention causes student teachers to become unable to determine when to attribute success to their own efforts (Woolfolk Hoy & Burke Spero, 2005), which is an essential component of developing self-efficacy and becoming agentic. An additional finding related to modeling was that active modeling – or enactive modeling – where a student teacher is engaged in the same activity as the mentor teacher who is modeling – may be particularly powerful. This new type of modeling, which is really a hybrid of traditional modeling and mastery experiences, allows for side-by-side comparisons to be made and on-the-fly adjustments to one's strategies and approaches based on the mentor model. In the case of the most self-efficacious student teacher, this sort of modeling was believed to have a strong impact, allowing mastery experiences to be gained while modeling was occurring due to the ability of co-teachers to team teach or parallel teach.

The relationship between emotions and self-efficacy also aligns with theory and other research, with emotional responses having a seemingly weak relationship with self-efficacy scores (Bandura, 1977; Mulholland & Wallace, 2001; O'Neill & Stephenson, 2012). For instance, while the student teacher who experienced large self-efficacy gains did experience positive emotions, the student teacher reporting the most negative emotions did not experience a large decrease in self-efficacy. It seems that one's emotional responses serve as a supporting source of efficacy information, which aligns with the interrelated nature of self-efficacy sources (Bandura, 1997). The four sources of efficacy information work together to shape self-efficacy and ultimately, agency, so while some sources are dominant at various times, the value of other sources is not diminished. For example, emotional arousal may be highly reliant on past mastery experiences and subsequent verbal persuasion, while mastery experiences may be directly paired with vicarious experience. This interrelated model means that while some experiences exhibit a stronger impact on self-efficacy development, none should be overlooked.

Reflection proved to be an important point of differentiation in this study, with one student teacher engaging in spontaneous, self-directed reflection and experiencing much self-efficacy growth, one engaging in assigned reflection and experiencing unchanging levels of self-efficacy, and one seemingly not reflecting and experiencing decreased self-efficacy. In social cognitive theory, reflection is considered an important skill, allowing one to impact his or her own behavior through self-regulation, which is said to directly impact self-efficacy (Bandura, 1991). Yost (2006), who links self-efficacy to teacher retention, also suggests that reflection is a critical component of self-efficacy and teacher persistence and determination. The university is positioned as the

driver of self-reflection in both pre-service and in-service teachers, with Yost (2006) citing research suggesting that universities have the ability to successfully teach reflection at the undergraduate level and that by engaging in-service teachers in research activity, increase their reflective abilities as well.

Co-teaching expectations were markedly different among study participants, with two student teachers having expectations related to student learning and one participant holding expectations related to her own learning. Among student-focused student teachers, one believed the expectation for co-teaching was to better meet student needs and this participant experienced much self-efficacy growth. A second believed the expectation for co-teaching was to "fix" students, but soon realized that her expectation was unrealistic, and this participant experienced declining self-efficacy. These patterns align with Bandura's (1997) discussion of expectancy-value theory and its relationship to self-efficacy. He explains that outcome expectancies are motivated by beliefs in one's ability to achieve a given expectation. This finding also is consistent with what is reported by other researchers who worked with groups of pre-service teachers who began student teaching with unrealistic expectations (Pendegrast et al, 2011; Putman, 2012). In situations where expectations are unrealistic or unwarranted then, it is natural and expected to experience decreased beliefs in one's ability to achieve the end goal and thus this will naturally impact self-efficacy. In the instance of the student teacher whose expectations were self-focused, she also found herself with unrealistic expectations due to a teaching environment that was not focused on her needs.

Social comparison played a strong role in addressing the third research question, and despite theory suggesting that social comparison is beneficial to self-efficacy

development (Bandura, 1997) in this study, the opposite effect occurred. Participants who compared themselves to others reported feeling less efficacious and feeling more negative emotions than their peers. The corrosive effect of these comparisons was recognized among student teachers themselves, with the student teacher participant who experienced the highest level of self-efficacy growth attributing the deliberate lack of social comparison as an important growth factor in her development.

Limitations

This study possesses limited external validity. This means the study findings may not be generalizable. However, generalizability is not the study's intent, nor is it consistent with this study's theoretical framework, so while this should be acknowledged, it cannot be considered a true limitation. Instead, transferability is this study's goal, and through detailed description, this end was achieved (Lincoln & Guba, 1985).

It must be acknowledged, though, that had 100% of survey participants chosen to participate in both the initial and final survey, the results of this study could be different. On pre-test scores, participants who left the study ($N = 19$) by attrition did have statistically significant higher levels of initial self-efficacy related to teaching when compared to participants who completed both initial and final surveys ($N = 19$, $M = 7.35$, $SD = .97$ versus $N = 27$, $M = 6.28$, $SD = .97$), $t(49) = -3.98$, $p = .001$). What would have happened to these levels over the course of student teaching is unknown, and an examination of participant change scores who did complete both surveys does not show a clear pattern of change for participants who began student co-teaching with high levels of self-efficacy. Additionally, the student teacher population lost by attrition does not seem to differ from those who participated in both phases of the study by other measured

characteristics such as age or gender, though the lost sample is composed predominantly of elementary education majors, with most secondary education majors participating in both data collection phases. So while those who were lost due to attrition do seem to be 'different', this difference may or may not have had a large impact on the study's overall findings and may simply reflect an underlying difference in elementary education versus secondary education teacher beliefs, which is not important to this study's purpose. It also must be remembered that instead of aiming for generalizability, this study's goal is to achieve a level of transferability (Lincoln & Guba, 1985) which will allow other professionals and scholars to determine if the provided data are helpful to their own situation.

With this in mind, it's important to understand that all data are self-reported, thus self-report bias may contaminate the data, presenting a more positive version of reality than actually existed (Donaldson & Grant-Vallone, 2002). To combat this type of bias, the researcher stressed that this study is not an evaluation of student teachers' abilities or employability, and it instead seeks only to understand the phenomenon of student teaching as a co-teacher. Additionally, using multiple data collection methods is believed to have helped to overcome this bias, as qualitative methods allowed probing for understanding to occur in a way that was not possible using a survey instrument alone.

With that in mind, much of the data yielded by this research is qualitative in nature, which sometimes is criticized as being problematically subjective (Neusar, 2014). To ensure the data's credibility, intercoder reliabilities of at least 90% were obtained in relation to all data coded by the researcher. An educational professional in possession of a graduate degree and who has conducted research was the second coder to ensure

increased credibility of data results and related inferences. Additionally, while each posed research question has a related key data source, results from all data sources provide data triangulation. Finally, the researcher has extended experience with student teaching, having supervised student teachers during their clinical placements for three years and working in teacher education for four years. This experience increases the interpretations' credibility.

Additionally, direct comparisons of self-efficacy development between student teachers who co-taught and student teachers who engaged in traditional student teaching arrangements were impossible to make. Making 'like-to-like' comparisons may have allowed the benefits and limitations of co-teaching to become more apparent. However, despite this limitation, this study showed that participants' self-efficacy levels were positively impacted by co-teaching, demonstrating that while we may not be able to say which experience has the *most* positive impact, we can likely rule out the possibility of harm caused by co-teaching.

Implications

The findings from this study have implications for many stakeholders in K-12 education, including teacher education program faculty, K-12 educational settings, student co-teachers, and fellow researchers.

Implications for Teacher Education Programs

At the teacher education program level, this study places further importance on the development of teacher identity. This study shows that engaging in the actions of co-teaching pushes this identity development forward, but that student co-teaching results in an incomplete developmental process for student teachers. Student teachers in traditional

non-co-teaching student teaching settings may result in an incomplete process as well, but co-teaching seems to create a unique environment for student teaching, resulting in situations where student teachers may find themselves in unbalanced teaching scenarios where the partners are not working synergistically and with true collaboration, as is the ideal put forth in co-teaching by its very definition (Bacharach et al., 2010; Badiali & Titus, 2010; Friend, 2008; Friend & Bursuck, 2006; Merk, Waggoner & Carroll, 2013; Tobin & Roth, 2005). This imbalance and the resulting exclusion from the activities– however large or slight, intentional or unintentional – may result in decreased self-efficacy growth than would otherwise be seen, an inability to imagine a future self as teacher, and thus an inability to fully develop one's sense of teacher self. For instance, in this study of the eight participants who were part of the qualitative data collection phase, two described synergistic placements and feeling the most like they can identify as teachers – these two participants also both exhibited high self-efficacy growth, with one growing more than one full scaled point and one growing nearly two full scaled points.

This suggests that co-teaching partners should be better trained in co-teaching scenarios, specifically with an emphasis on using scenarios other than one-teach, one-observe, which always results in one partner acting in a less student-facing role. Additionally, implementing either extensive role playing or co-teaching practice before student teaching officially begins may be useful for partnerships to be built. For example, practicums might be planned that place student and mentor co-teaching partners together prior to student teaching to ensure the two build a collaborative rapport before student teaching begins and so they can begin experimenting with co-teaching approaches. A practicum in co-teaching itself may become part of the curriculum, or a

co-teaching focus may be built into existing coursework, requiring students and practicum mentors to enact various co-teaching structures and encouraging them to reflect upon their effectiveness and future usefulness.

This focused training likely would also result in a more effective student co-teaching experience by enabling student teachers to hit the ground running. While co-teaching assumes that this is the case already (Bacharach et al., 2010), this study has shown that the majority of co-teaching partnerships begin with the student teacher observing, sometimes for an extended time, rather than taking on a visibly active role in the classroom. While there is a place for observation, too much time in this secondary role proves detrimental to the student teachers' development.

Additionally, it seems the involvement in the larger school community – recognition by colleagues and parents, for example – played a strong role in student teachers' development. This recognition amounts to unsolicited feedback, and may be so powerful due to its unexpected nature and because it falls outside the bounds of the required sorts of feedback a student teacher gains from a university supervisor, mentor, and even his or her students. Strategies to engage student teachers with the larger school community during their student teaching might be shared with mentor teachers, emphasizing the importance of student teachers participating in parent communication, staff meetings, and other opportunities to engage.

Feedback also proved to be an important component in student teachers' development of both a sense of teaching identity and in their self-efficacy growth. Student teachers who received regular feedback in regard to their teaching felt more like a teacher than their peers, and also experienced gains in self-efficacy; student teachers

who did not receive regular feedback reported feelings of frustration, confusion, and uncertainty. In these cases, the ability to feel like a capable teacher was hindered, reportedly by the lack of feedback, and self-efficacy stagnated. This indicates that direct instruction on how to provide feedback may be helpful for mentor teachers seeking to co-teach. The most helpful feedback is that which is timely and that focuses on gains, whereas feedback that focuses on where improvement is needed negatively impacts self-efficacy (Bandura, 1997). Mentor teachers and university supervisors should be aware of the need to stress areas of growth when feedback is provided. Doing so does not mask areas of deficiency; rather it highlights areas of celebration with the assumption that student teachers will continue to work on the areas in need of further growth.

Social interaction is one area where universities might provide the student teachers themselves further guidance. Social comparison was seen as a prominent and detrimental issue for student teachers, even though comparisons are made inside teacher workrooms and departmental meetings all the time. It seems that despite this being a somewhat regular part of the teaching profession, student teachers are entirely unprepared for this reality. Providing instruction on the realities of teaching and the relationships experienced within departments – both the competitive and collaborative –from early on in one's program may better prepare student teachers for this reality. Likewise, social comparisons were understood as particularly damaging because student teachers seemed to assume there is an "ideal" teacher or "ideal" setting. It is essential that teaching be contextualized. While we know that certain practices are more effective than others, the fact remains that each classroom full of students is unique and there is no universally effective teacher or teaching strategy. Instead, teachers must adapt to their students'

needs, and that is the hallmark of an effective teacher. Emphasizing this reality, rather than reinforcing the false ideal that there is a perfect teacher 'out there' somewhere is a responsibility of universities and of the university supervisors employed by them.

Expectations for co-teaching must also be managed. Prior research (Putman, 2012; Pendegrast et al, 2011) and this study have all shown that unrealistic expectations negatively impact self-efficacy related to teaching. For universities and university supervisors, this means that ensuring expectations for co-teaching are realistic to the setting in which they will teach is very important. This study also indicates that student teachers who are focused on their role in helping students develop, rather than on "fixing" students or on their own development, experience the most self-efficacy growth during student teaching. This presents an opportunity to frame co-teaching with future cohorts of student teachers in that light, rather than by emphasizing the personal benefits that might be obtained.

Finally, student teachers who lacked models or felt that social comparisons weighed upon them might have been helped by cognitive self-modeling strategies. Cognitive self-modeling is a form of vicarious experience that has been found to be especially helpful for novices (Bandura, 1997) and for the student teacher in this study who felt that she never was able to benefit from a model, implementing self-modeling techniques may have made the difference between her self-efficacy remaining stable and her self-efficacy growing. Ideally, cognitive self-modeling will be paired with actual modeling – where a student teacher sees an action or process modeled – and then spends some time envisioning him or herself completing the same action and imagining the outcomes. If a student teacher finds him or herself lacking a mentor model, online

resources such as Teacher Tube (www.teachertube.com) may help to make up the difference and allow self-modeling to be effective.

Implications for K-12 Educators

Interestingly, professional learning communities, which may serve as a source of community-based acceptance and feedback for student teachers may prove to be detrimental if the community is hosting multiple student teachers or if lesson planning is done in a community setting. These situations can create a competitive atmosphere among student teachers and require student teachers to elicit planning consent from not one, but many mentor teachers, complicating an already challenging part of a pre-service teacher's academic career. This emphasizes two needs that K-12 setting participants should consider. First, pairing student teachers in PLC or other professional settings with each other is not advisable. While other research has focused on partnered student teaching experiences and recommended them as providing mutual benefits to student teachers (Tobin & Roth, 2005), it seems that for participants in this study who exist in the competitive job market of Indiana's K-12 educational system, working closely with a person who is viewed as a competitor for potential jobs and immediate accolades created more harm that benefit. Because peer-group based social comparison is already a concern for these students, it seems that such situations exacerbate and heighten an already anxious time. Instead, pairing student teachers with experts – their mentor teachers - who can provide feedback and support is ideal. Secondly, if PLCs plan together, all involved parties should be prepared to solicit and encourage student teacher contributions to the planning session. More ideally, the involved parties might temporarily discontinue the group planning aspects of the PLC, allowing the student

teacher and mentor teacher to co-plan together for at least a time. While co-teaching may be viewed as a way to socialize new teachers and acclimate them to the professional community (Badiali & Titus, 2010; Scantlebury et al, 2008), allowing student teachers to build their confidence in a private way before being placed in a public, group planning setting seems advisable. Eventually, moving into full group planning will likely benefit student teachers, but having this as an initial experience seems to intimidate novices.

Implication Specific to English Education

While this study was focused on student teaching as a co-teacher and did not limit its scope to a specific content area, I did choose to pay special attention to two participants who were English Education student teachers, because my own academic major is English Education, I am an English educator, and I am also a former English teacher. While their data were used to contribute to the larger purpose of this study - understanding co-teaching and related self-efficacy growth – I also was able to benefit from reviewing these two isolated cases to gain greater understanding of the unique circumstances related to being a co-teaching English teacher. That said, the implications already discussed should be considered by English educators, as all evidence suggests pre-service English teachers share similar experiences as those reported in this study. The implications presented here, then, are additional implications garnered by an increased focus on the English Education participants in this study, and should be considered additional insights specific to English teacher preparation programs.

In these two participants, I saw development that aligns with what is described in the larger study, with one student teacher describing a synergistic co-teaching experience and feeling nearly able to call herself a teacher and self-efficacious at the end of student

teacher, while another who was profiled in this dissertation did not teach with synergy and, in fact, had no growth in her self-efficacy and also struggled to feel like a teacher. Despite these different experiences, though, this duo shared an interesting commonality – both began with low levels of self-efficacy related to teaching, with both participants initially reporting self-efficacy beliefs that placed them below the 50th percentile of participants - and in conversation, each explained that they felt pedagogically weak, but content-strong. Teaching literature, in particular, was an area where both felt their respective universities had prepared them, and composition also felt like content on which each was capable and ready to serve as a subject matter expert. It was only in the actual delivery where these two participants shared concern about their abilities. This indicates that English Education programs may benefit from reviewing their methods coursework and ensuring pre-service teachers are receiving enough practicum or other active teaching time prior to student teaching to begin with a greater level of confidence. Additionally, programs can use additional strategies such as cognitive self-modeling (Bandura, 1997) to provide pre-service teachers opportunities to build the imagined future-self and visualize the actions he or she would take. Reflection has been shown to be an important component of one's development as well, and combining reflection with self-modeling activities, which may include case studies, teacher narratives, and watching recorded lessons, should increase the effectiveness of self-modeling on one's developing sense of self-efficacy.

Literacy coursework has been shown to be a mediating factor in situations where self-efficacy is otherwise expected to decrease (Clark, 2010), and this finding is consistent with this study as well. In the participant who maintained, but did not

increase, her self-efficacy related to teaching, her past coursework in literature and composition seemed to have provided enough content-specific efficacy information to mitigate the potentially corrosive impact of receiving little-to-no feedback, benefitting from almost no modeling, and being regularly beset by negative emotions. Palmer's (2006) expanded discussion of mastery experiences, which includes mastery of understanding content knowledge and mastery of obtaining pedagogical content knowledge, relate to this finding, as both English student teachers in this study felt content-mastery strong. This finding and the research that came before it emphasizes the importance of maintaining strong academic programs while also emphasizing the need for increased methods instruction and practice. In a time when short-cuts to teaching degrees are politically favored, it behooves program directors and universities to ensure the strength of the degree is not compromised.

Future Research

This study has begun to address an area that demands increased scholarly attention – the outcomes of co-teaching as a student teacher training method. However, this is only the beginning. Researchers might replicate and extend this study through a cohort's first year of teaching to determine how self-efficacy levels fluctuate longitudinally. This would allow for comparisons to be made to published research featuring traditionally trained groups of student teachers. It also would allow concerns regarding co-teaching's ability to prepare student teachers for the "real" classroom where they operate independently to be put to rest, particularly if a mixed methods study that examined both self-efficacy development and teacher experiences was used.

Additionally, because self-efficacy related to teaching is expected to have so many valued outcomes (Armor et al., 1976; Ashton & Webb, 1986; Bandura, 1997; Caprara et al., 2006; Woolfolk Hoy & Burke Spero, 2005; Klassen & Chiu, 2010; Shaughnessy, 2004; Tschannen-Moran et al., 1998), examining these outcomes in relation to student teacher self-efficacy scores and training methods (e.g. traditional student teaching versus co-teaching) may provide insight into areas in need of additional training or practice at the pre-service teacher level. For example, future research may evaluate the performance of first or second year teachers and correlate these performance evaluations with the type of student teaching completed by participants as well as to the final self-efficacy scores reported by participants. If trends are detected, this may indicate areas where one student teaching approach (co-teaching or traditional student teaching) needs improvement, as well as areas where self-efficacy scores reflect or do not reflect future performance.

Finally, a study of early-career teachers who were trained through co-teaching may be beneficial to ensure that school corporations are meeting their professional development needs, as incoming cohorts of novice teachers are among the first to have experienced co-teaching.

Conclusions

This research has shown that co-teaching seems to be a viable and valuable method of training pre-service teachers. Its usefulness will be strengthened if university programs are able to implement training and provide supports to ensure student teachers gain the maximum benefits of co-teaching, while avoiding the possible pitfalls, including becoming an accidental observer or of becoming wrapped up in social comparisons.

Looking to the future, co-teaching seems to represent a viable method of meeting the needs of K-12 schools, K-12 students, and the student teachers themselves. While co-teaching does not seem to be significantly better for the student teachers themselves, it also does not seem to be at all worse. If anything, it seems that these are equivalent teacher training methods, and due to the many benefits reported for K-12 schools as well as the practical aspects of co-teaching for university programs, co-teaching is a method of student teaching that I encourage. As more training is provided to student teachers, mentors, and university supervisors, it seems likely that co-teaching may even become a clear front-runner for the student teachers themselves.

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APPENDICES

Appendix A

Table of Research Questions and Related Data Sources

Table A1

Research Questions and Related Data Sources

Research question	Data source	Data source	Data source
How do student teachers engaged in a co-teaching student teaching arrangement experience the classroom role of teacher within this setting?	Focus group	Interview	TSES survey instrument
How much does co-teaching as a student teacher impact a pre-service student teacher's sense of self-efficacy related to teaching?	TSES survey instrument	Interview	
What are the experiences of co-teaching as a student teacher that inhibit, enhance, or maintain one's sense of self-efficacy related to teaching?	Interview		TSES survey instrument

Appendix B

TSES Scale

Table B1

TSES Scale

Teacher Beliefs	How much can you do?				
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Not at all	Very little	Some degree	Quite a bit	A great deal
1. How much can you do to get through to the most difficult students?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
2. How much can you do to help your students think critically?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
3. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
4. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
5. To what extent can you make your expectations clear about student behavior?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
6. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
7. How well can you respond to difficult questions from your students?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
8. How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
9. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
10. How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
11. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
12. How much can you do to foster student creativity?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)
13. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5) (6) (7) (8) (9)

Table B1 Continued

Teacher Beliefs	How much can you do?								
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Not at all		Very little		Some degree		Quite a bit		A great deal
14. How much can you do to improve the understanding of a student who is failing?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17. How much can you do to adjust your lessons to the proper level for individual students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
18. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
19. How well can you keep a few problem students form ruining an entire lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
20. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21. How well can you respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
22. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
23. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24. How well can you provide appropriate challenges for very capable students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Note. Source: Tshchannen-Moran and Woolfolk Hoy (2001).

Appendix C

Guiding Questions for Focus Group

1.) Introductions (name and a "catch phrase" or symbol that captures who you are as a teacher drawn or written on the card stock)

2.) Let's create a definition of co-teaching for student teachers (what does it look like, what does it feel like?)

   a. Be sure to clarify roles of teacher candidate, mentor teacher in relation to instruction, planning, classroom management, collaboration, and overall classroom control

   b. Do you all agree that these are the important components? Why or why not?

3.) Tell me about becoming a teacher as a "co teacher"? How did it feel to gain your first teaching experience in this way?

   a. Describe the growth –

      1. Can you show me? "Chart it" to create a visual artifact.

         a. Tell me about the low points? – What was happening?

         b. Tell me about the high points? – What was happening?

   b. At what point did you – or have you – started to think of yourself as a "teacher" rather than as a student.

      i. What was that like (or other probe follow ups)

ii. Was there a specific experience you had?

c. What are the most positive aspects of becoming and being a teacher in this situation?

i. Can you share an example?

ii. Do you all agree with this?

d. What are the drawbacks of becoming and being a teacher in this situation?

i. Can you share an example?

ii. Do you all agree with this?

4.) How do you expect these experiences from co-teaching to impact what you do in your classroom next year?

5.) How do you feel about yourself as a teacher now – not a student teacher or teacher candidate – but as someone whose completed essentially all the requirements to be a teacher in the state of Indiana?

6.) Purpose was to learn about what it's like to be a new teacher in this sort of environment. What should I have asked you that I haven't?

Appendix D

Name Signs

Figure D1. Sampling of name signs collected from participants during focus groups on (April 11, 2015, and April 11, 2015).

Appendix E

Semi-Structured Interview Protocol

1. What was co-teaching like for you?
    a. How do you think this impacted your feelings about yourself as a teacher?
    b. What specific experiences have had the greatest impact on you?
2. I noticed that your survey scores (stayed the same, decreased, increased). Tell me why you think that is?
    a. If you had *not* been co-teaching, do you think your survey responses would have been the same?
    b. Was there anything in particular about co-teaching that influenced the (change/stability) in your survey responses?
3. How has co-teaching impacted your abilities to…
    a. Instruct
        i. What would a typical day of instruction look like? What have you learned from co-teaching that will continue to be beneficial to you?
        ii. How does this typical day impact your feelings about yourself as a teacher?
    b. Manage classroom
        i. How do you typically manage the classroom?

ii. How does this impact your feelings about yourself as a teacher?

c. Engage students
    i. What strategies do you use to engage students?
    ii. How does this impact your feelings?
d. Plan
    i. What is a typical planning session like?
    ii. How does this impact your feelings about yourself as a teacher?
e. Attribute success and/or failure to your own efforts as a teacher?
f. Handle community / parental communications and or concerns
g. Collaborate with peers
h. What other ways have you been impacted by co-teaching?

4. How often did you feel you were exercising agency in the classroom? (decision making power to take action for the benefit of your students?)
    a. What sorts of activities were you leading?
    b. How successful would you judge your attempts at completing the various activities you described? How did those experiences impact you? What happened if they didn't go so well?
5. What was it like watching your mentor teacher engage in the various demands of teaching?
    a. Planning
    b. Teaching

    c. Classroom management
    d. Administrative/organizational items
    e. How did these experiences impact you, as a teacher?

6. Tell me about the type of feedback you typically received related to your performance.
    a. How does that affect your confidence to teach?
7. What were your feelings when you begin each day? For example, would you describe yourself as excited, anxious, energized, nervous, etc…
8. Tell me about your confidence in your ability to promote literacy skills among your students…
    a. Reading
    b. Writing
    c. Verbal communication
        i. What factors and experiences impact the feelings you described?
9. If you had to choose just one experience from co-teaching, what one thing most positively impacts your beliefs about your ability as a teacher?
10. If you had to choose one experience from student teaching, what one thing causes you the most concerns about your ability as a teacher? (wavering of confidence)

Appendix F

Codebook Provided for the Interater Reliability Process

Table F1

Interrater Reliability Process Codebook

Code	Description
Co-teaching	This code is used to designate conversation that focuses on co-teaching aspects of the study teaching experience such as model usage, co-planning, and relevant activities.
Emotions	This category refers to instances when student teachers described their emotional states during the student teaching experience.
Expectations	This category is used to identify data that refers to pre-conceived expectations student teachers had about student teaching and becoming a teacher prior to when student teaching began.
Feedback	This category refers to instances when student teachers have received feedback regarding their work. Feedback may be structured, formal assessment feedback, or it may be informal comments made by peers, students, or mentors.
Mastery teaching experiences	This category refers to instances when student teachers describe participating in masterly level experiences. Mastery level experiences are those that allow the student teacher first hand teaching experience, and may include but are not limited to, delivering instruction, planning lessons, conducting parent meetings and participating in faculty meetings.
Social comparison	This category refers to data that indicates student teachers were comparing themselves to others or felt they were being compared by others to others.
Modeling	This category refers to instances when student teachers discuss their experiences related to professional role modeling by their mentor teachers or anyone else who may have (or may not have) modeled the professional behaviors expected of teachers.
Reflectiveness	This category refers to comments made by participants that discuss their reflectiveness.

Appendix G

Thematic Coding Related to Research Question 1

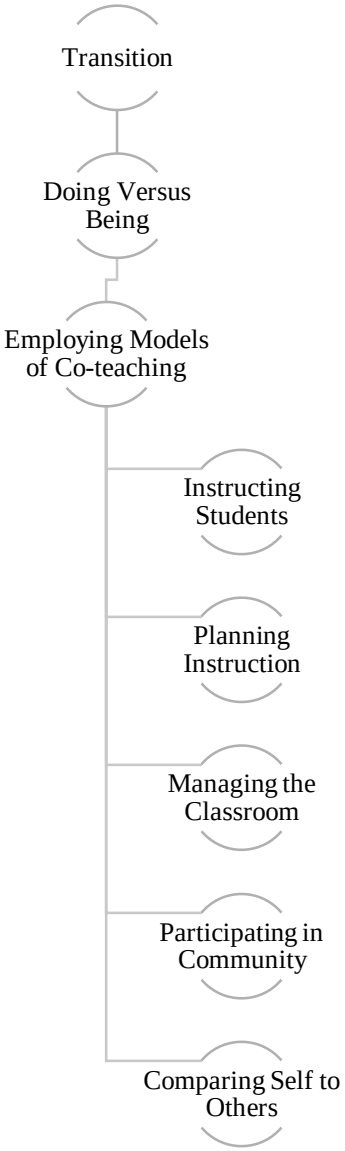

Figure G1. Coding tree for research question 1 ("the experience of co-teaching") organized by identified themes.

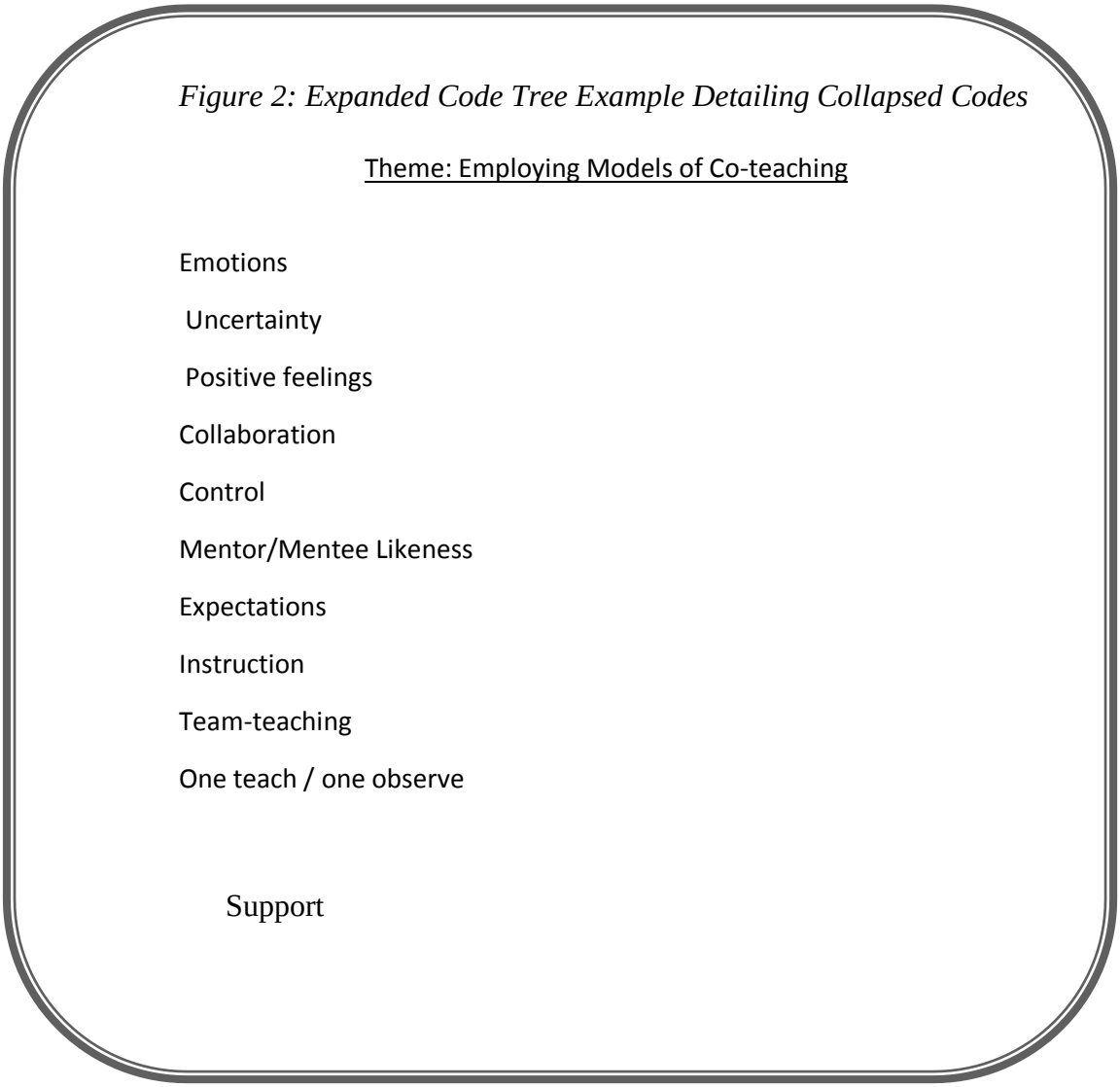

Figure G2. Expanded code tree example detailing collapsed codes related to the theme "Employing Models of Co-teaching."

Appendix H

Numeric Table Depicting Coding Frequency

Related to Research Question 3

Table H1

Coding Frequency Related to Research Question 3

	Decreased Self-efficacy	Increased Self-efficacy	Stable Self-efficacy
Co-teaching –	12	8	7
Emotions	5	5	4
Expectations	2	1	2
Feedback	4	4	6
Mastery teaching experiences	2	5	3
Modeling	6	4	2
Reflectiveness	0	2	1
Social Comparison	2	1	2

Note. This table was exported from Nvivo 10, and in Nvivo 10 each numeric quadrant can be opened to reveal the actual coded data, as shown in Appendix L.

Appendix I

Word Table Featuring Participant Experiences

by Self-Efficacy Level

Table I1

Participant Experiences by Self-Efficacy Level

Thematic category	Self-efficacy		
	Increased 2 points	Decreased 2 points	Remained stable
Co-teaching	Parallel teaching, with co-teaching viewed as a way to help students learn rather than to help her learn. Parallel transitioned to solo time, though parallel teaching remained a constant due to the nature of the class Positive interactions with co-teaching mentor teacher Co-teaching understood as a way to meet student needs	One-teach, one-observe team-teaching, and culminated in "solo" time Co-teaching understood as a way to provide support for the student teacher Positive interactions with her co-teaching mentor teachers, though one was found to be more helpful than another	Co-teaching models were little used, and a lack of communication and collaboration characterized the relationship. Co-teaching was understood as having potential to aid in the student teacher's development, but this potential was unrealized. Co-teaching was instigated by the student teacher, acting in the role one would expect from the "mentor"
Emotions	Positive emotions related to increased confidence in teacher self	Initial fear eventually gave way to excitement tinged with a bit of anxiety	Initial excitement gave way to frustration and feelings of discomfort due to failed expectations
Expectations	Few expectations, with primary focus on meeting student needs, which she feels she has done	Had high expectations related to her ability to come in and "fix" students; was disillusioned when she realized that she cannot immediately create the results she desires.	Had expectations that this would be a developmental journey for herself under the guidance of a master teacher, was disillusioned of this dream Had expectations about co-teaching based on university training

Table I1 Continued

Thematic category	Self-efficacy		
	Increased 2 points	Decreased 2 points	Remained stable
Feedback	Frequent performance feedback from mentor; welcomed in school community; student feedback useful as well	Regular, robust feedback from primary mentor; positive but vague feedback from secondary mentor	Lack of feedback throughout the experiences; during final days received strong student feedback that did bolster her overall feelings about her development
Mastery Teaching Experiences	Gained from the start due to co-teaching structures	When asked about mastery experiences, participant actually focuses on feedback and modeling experiences. Did recall planning lessons and making "on the spot" lesson plan modifications as mastery teaching experiences.	A plethora of mastery experiences but without feedback, they weren't of value. When probed, she did recall some instances of her teaching that garnered positive student feedback and made her feel confident.
Modeling	Not as plentiful or impactful, it seems due to very few mentions; was found helpful in conveying some of the immeasurable details of teaching relating to interpersonal teacher-student interactions, for example	Very plentiful and impactful for this student teacher	Limited to none. When she did have the chance to observe, there was no conversation before or afterward to guide her observation and help her grow from the experience.
Reflectiveness	Highly reflective, spontaneous reflections (versus assigned reflections)	Not addressed	Found assigned reflections to be helpful.
Social comparison	Explicitly avoided social comparison with peers	A concern for this student teacher, particularly in regard to the subjectivity aspect of different student teachers being compared against each other; positively viewed social comparison when viewing her own actions in regard to her mentor's.	Concerned that others had more supportive placements than did she, and thus were able to do a better job.

Appendix J

Examples of Growth Lines Sketched by Student Co-Teachers

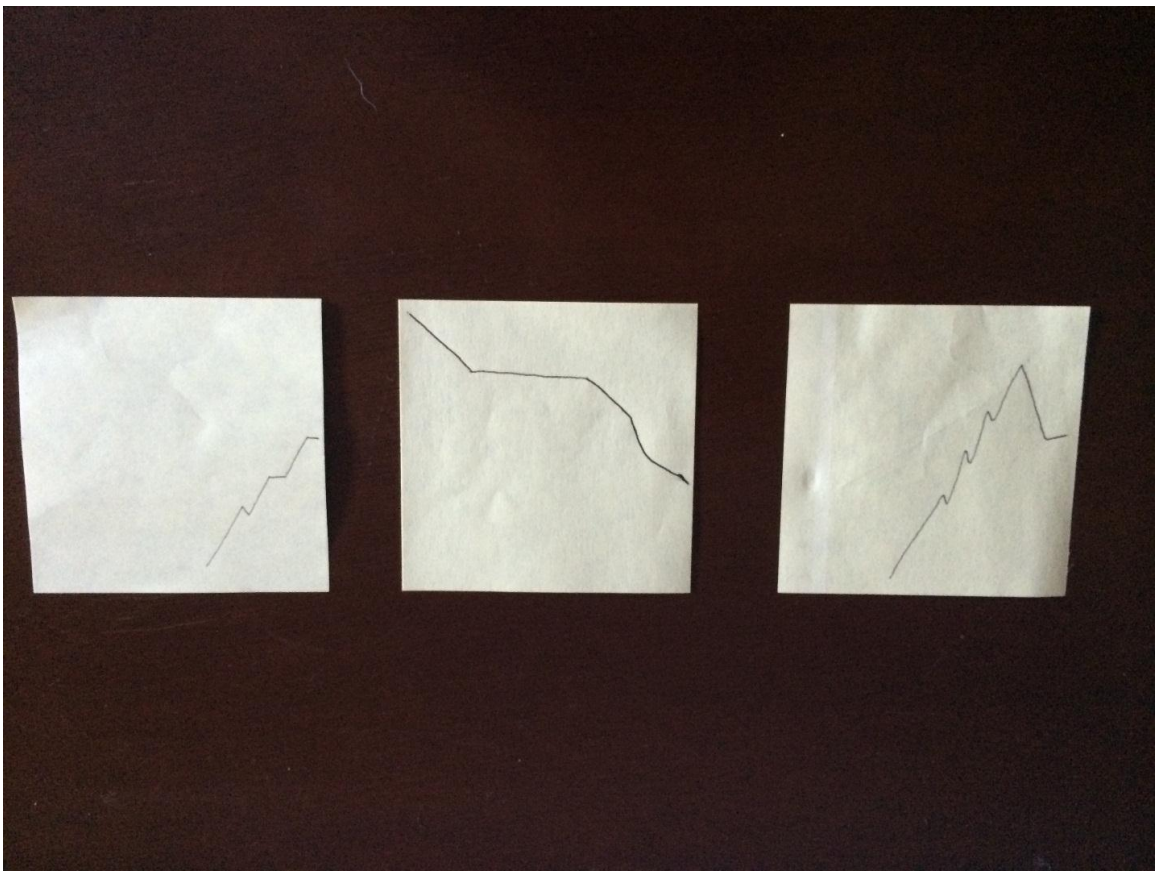

Figure G1. Examples of Growth lines sketched by student co-teachers. These lines were representative of the student teacher's feelings of confidence related to their teaching throughout their student teaching experience. These samples were collected from the April 12, 2015 focus group.

Appendix K

Data Set Organization Within Nvivo

The images on this page demonstrate the data set organization within Nvivo. In figure 1, the coding can be seen sorted by individual participants (this is an Excel export of the file in Nvivo, as it is more clearly read). Then, in figure 2, you can see that after clicking on the "Feedback" row under column "Decreased Self Efficacy" within the Nvivo program, a new screen that features the relevant chunks of coded material populates the screen.

Table K1

Coding Sorted by Individual Participants

	Decreased self-efficacy	Increased self-efficacy	Stable self-efficacy
Co-teaching – orientation toward	12	8	7
Emotions	5	5	4
Expectations	2	1	2
Feedback	4	4	6
Mastery teaching experiences	2	5	3
Modeling	6	4	2
Reflectiveness	0	2	1
Social Comparison	2	1	2

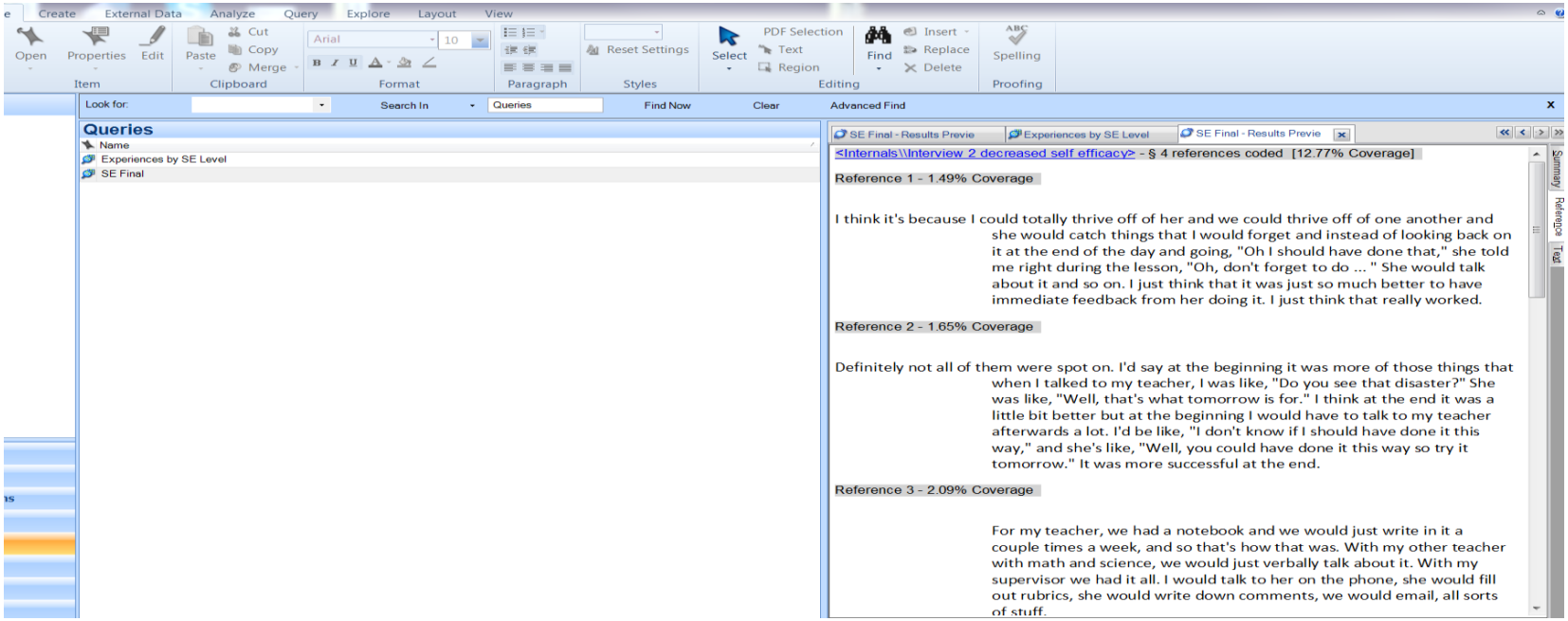

Figure K1. Example of coded material populated by Nvivo.

VITA

VITA

KRISTA D. ZARTMAN

Teacher Education Course Mentor, Western Governors University

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GENERAL INFORMATION

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801 924 4491
krista.zartman@wgu.edu

EDUCATION AND CREDENTIALS

Doctor of Philosophy, Curriculum and Instruction – Purdue University, West Lafayette, IN December, 2015
Major Emphasis: English Education
Advisor: Dr. Janet Alsup

Master of Education, Olivet Nazarene University - Bourbonnais, IL. June 2008 **Major: Curriculum and Instructional Design**

Bachelor of Science: Communication Studies, Minors in English and Journalism
Manchester College, North Manchester, IN – May 2003

Teaching Credentials / License Type: English, Journalism, Speech Communication and Theater (5-12, State of Indiana Professionalized License, Exp. 2021)

ORGANIZATIONAL MEMBERSHIPS

National Council of Teachers of English, 2010 - present

College English Association, 2011 – present
ASCD, 2011- present

A. TEACHING AND LEARNING

Western Governors University, Salt Lake City, Utah, February 2011 – Present
Serve as a content mentor (course mentor) for the following courses:

English Pedagogy (C396) February 2014- present
Literature Reviews for Educational Research (JUT2), January, 2013 – present
Learning Theories (IZT2), June 2013 – present
Introduction to Curriculum Theory (IYT2), September 2013 – present
Instructional Theory (JWT2), September 2013-present
Curriculum Evaluation (JZT2), September 2013-present
Curriculum Design (JYT2), September 2013-present
Assessment for Student Learning (KAT2), September 2013-present
Differentiated Instruction (KBT2), September 2013 - present
Language and Communication: Presentation (LUT1), February 2011- March 2012
Language and Communication: Research (LAT2), February 2011-March 2012
Language and Communication: Essay (LAE1), February 2011-March 2012

Served as an academic advisor (student mentor) for the following degree programs:

Master of Science, Curriculum and Instruction, March, 2012- September 2013
Master of Education, Instructional Design, March 2012 – September 2013
Master of Education, Technology Integration March 2012 – September 2013

Purdue University, West Lafayette, IN, January 2012 – May 2015
Served as a University Supervisor for EDCI 498

Maconaquah High School, Bunker Hill, IN, 2007-2011
Advanced Placement Literature and Composition
Advanced Placement Language and Composition
English 12
Journalism: Newspaper
Journalism: Yearbook

Ivy Tech Community College, Kokomo & Warsaw, IN, 2008-2010
Com 101: Public Speaking
Com 102: Interpersonal Communication

Warsaw Community High School and Warsaw Alternative Learning Center, 2006-2007

English 12
English 9
Speech
Debate
Adult GED Preparation
Adult English as a Second Language

CURRICULUM AND COURSE DEVELOPMENT

Learning Theories, 2013-2014
Created cohort-based webinar series implemented in Feburary, 2014, curriculum guides, online blogs and learning community content. Revised course of study set for 2014 implementation.
Literature Reviews for Educational Research, 2013
Created creating cohort-based learning plans set for May, 2013 implementation. Created content-based webinars for live viewing
Language and Communication Presentation, 2011-2012
Collaborated on course of study updates, created explanatory blog entries and student learning materials, recorded webinars and accompanying guides,
Advanced Placement Literature and Composition Curriculum, 2009
Curriculum guides, presentation materials, student learning materials
Advanced Placement Language and Composition Curriculum, 2011
Curriculum guides, presentation materials, student learning materials
English 12 – Senior Project Development and Curriculum, 2007-2011
Curriculum guides, presentation materials, student learning materials
English 12 – Curriculum, 2008-2011
Curriculum guides, presentation materials, and student learning materials

TEACHING METHODS AND TECHNIQUES

Utilized Edmodo to create online learning community for EDCI 498 students in addition to face-to-face meetings
Collaborate to create a smooth transition from general education Language and Communication courses to content area courses for Elementary Education majors
Utilize web conferencing technology to create face-to-face learning experience via distance education
Engage reticent learners via live chat sessions during online learning sessions
Created recorded webinars and supplementary materials to meet the needs of working adults unable to attend class sessions
Implement active learning strategies for online learning to ensure course content is thoroughly engaged and utilized
Created progress guides to support student learning in an independent, online learning environment

B. ENGAGEMENT, EXTENSION, SERVICE AND UNIVERSITY OUTREACH ACTIVITIES

ARTICLE REVIEWER

English Journal, a publication of the NCTE, 2012 – present

ESSAY REVIEWER

Normal Mailer Writing Awards, hosted by the NCTE, Spring, 2014

COMMITTEES

Data and Reporting Needs Committee, 2011 – 2012, Western Governors University
Served as a member of a committee tasked with determining what data are needed to make data-driven decisions to improve student learning
Technology Implementation, 2009-2010, Maconaquah High School
Served as a member of a committee tasked with determining what technological additions would improve student learning. Provided staff training regarding the utilization of various learning technologies
Language Arts Textbook Adoption, 2007-2008, Maconaquah High School
Reviewed texts and attended curriculum alignment meetings as part of a three-person committee
Language Arts Curriculum Committee, 2006-2007, Warsaw High School)
Collaboratively wrote 9-12 English curriculum
Early Childhood / Language and Communication Collaboration Team, 2011-2012, Western Governors University
Worked with colleagues in general education and Teachers' College to create a smooth transition for students. Created special webinars and instructional materials intended to demonstrate the relationship between general education and content area courses.

ACADEMIC PRESENTATIONS

Zartman, K. (2014, March). *Conflict and Self-efficacy in the co-taught English classroom.* Paper presented at the College English Association, Baltimore, MD.

Zartman, K. (2015, July). *Have we found the holy grail?* Paper presented at the Conference on English Education, New York City, NY.

INVITED PRESENTATIONS

Zartman, K. & Wheeler, J. (2014, September). *Co-Teaching as a Student Teacher*. Presentation for the EDCI 498 Students at Tara Star Johnson, Purdue University, West Lafayette, IN

PROFESSIONAL PRESENTATIONS

Using Google Education Suite for Instruction – Maconaquah High School In-Service, April 2010

Language and Communication Presentation Course Overview: WGU Faculty In-Service, April ,2011

Using GoogleDocs for Video Submission, WGU Liberal Arts Faculty Meeting, May 2011

Language and Communication: Presentation – WGU Staff Update November, 2011

Creating Relevancy Between the Liberal Arts and Career Colleges: A Collaboration Between the Language and Communication and Early Childhood Education Teams, WGU Faculty Presentation, December 2011

Language and Communication Essay and Presentation: An Update for New Mentors, WGU Liberal Arts Faculty Training, November 2011

iMentor: Strategies for Effective Communication, WGU Faculty In-Service Training, January 2012

GRADUATE-LEVEL AWARD

2015 Susan Carlson Harbridge Graduate Scholarship in Language and Literature Education